CLASS 428, STOCK MATERIAL OR MISCELLANEOUS ARTICLES

SECTION I - CLASS DEFINITION

This class accommodates certain products of manufacture which are not provided for in classes devoted primarily to manufacturing methods and apparatus. The bulk of the documents are directed to stock material composites, that is, materials having two or more distinct components which are more ordered than a mere random mixture of ingredients.

Certain finished articles, generally of an ornamental or readily disposable nature, are placed herein when this class specifically provides for them. Unfinished articles, e.g., blanks requiring further significant shaping to be suitable for ultimate use, and stock materials from which an indefinite number of usable portions may be cut, are placed herein unless specifically provided for elsewhere. The determination whether a product is a finished article or a stock material is made on the basis of the amount of structure included in the body of the claims.

A patent for this class is placed herein generally without regard to the process by which it is made, for example, without regard to whether the plural layer product was formed by extrusion, coating, or assembly of preformed layers.

Therefore, unless otherwise clearly stated, the term "coating" or "layer" will include a preform as well as a layer formed by covering a base with a fluent material which then solidifies. A comprehensive search for processes of making the products of this class will be found in the manufacturing classes listed below.

An asterisk has been applied to certain terms throughout this bulletin to indicate that these terms have specific definitions in the Glossary, which should be consulted.

The asterisk has been applied to identify the term in the first appearing definition which must be considered for the desired subclass title.

It should be noted that there are two sections for the glossary. The first one applies generally to the structural areas of the schedule; the second applies to materials (e.g., compound, composition, etc.). It should further be noted, however, that the structural areas of the class also include some subclasses directed to materials.

Both sections of the glossary should be consulted.

This is the residual class for:

A. Stock material in the form of a structurally defined web*, sheet*, rod*, strand*, fiber*, filament*, cell*, flake*, particle* not provided elsewhere.

B. Stock material in the form of a web*, sheet*, mass* or layer* which consists of or contains a structurally defined constituent* or element* not provided elsewhere.

C. A nonstructural laminate defined merely in terms of the composition of one or more layers* not provided elsewhere.

D. An article* of manufacture not provided for elsewhere.

E. An intermediate-article* which is not provided for elsewhere and from which a final article is to be made.

F. A process for applying an impregnating material to a naturally solid product such as a wood beam, a sheet of leather or a stone, or for applying a coating to a base, and which process includes no significant method step. Such a patent is placed in the schedule on the disclosed product produced, whether structural or nonstructural. See section VI, C, 6, below, reference to Class 427, Coating Processes, for guide lines which are to be followed in determining whether or not a process step is significant, for classification in Class 427, or not significant for placement in Class 428.

FRAMEWORK OF THE CLASS

This class comprises several major subclass groups which can be identified by reading down the first-line indent subclasses, and a special category for metallic* materials which parallels the arrangement provided for nonmetallic* materials, insofar as this arrangement is applicable. These major groups and parallel metallic* groups are:

A. Subclasses 1 through 39 and 576 provide for special articles* generally defined in all three dimensions, for which there is no provision elsewhere, and subclasses 542 and 577+ provide for intermediate-articles*.

B. Subclasses 40 through 84, 571 through 575 and 586 through 591 provide for a special web* or sheet*.

C. Subclasses 85+ for special surface characteristics of the pile or nap type.

D. Subclasses 98+, 357+, 544-570, 592-604, 606-614, and 687 provide for stock material either in the form of a web* or sheet*, or an element* (e.g., rod*, fiber*, filament*, particle*, flake*, etc.), respectively, which of and by itself is structurally defined as claimed.

Some examples of a structurally defined web* or sheet* are: (1) particular shape, particular size, or other physical configuration. (2) including an external mechanical fastener so as to be attached to another object. (3) components* or elements* arranged relative to each other or to a surface. (4) components* having same characteristic but in different degree. (5) a discontinuous coating, impregnation or bond. (6) variation in thickness or in planarity. (7) attachment of components* by stitching and bond or coating. (8) apertures. (9) surface finish. (10) any recitation of a measurable extent, no matter how wide, (e.g., "up to .075 mil", "between 10 and 25 microns", etc.).

Some examples of structurally defined elements* are:

(1) particular size or shape or other physical configuration (see above). (2) nonlinearity of a fiber or filament (e.g., crimped or coiled, etc.). (3) specific depth of impregnation of a fiber or filament.

(1) Note. As a special case, even though not structure, a coated or bonded fiber, filament, rod, strand is placed in subclasses 357+.

E. Subclasses 221+ provides for a web* or sheet* in which one component* or element* (e.g., fiber, filament, strand, particle, etc.) is structurally defined as claimed.

Some examples of defined structure are: (1) size or particular configuration or shape, either absolute or relative (e.g., weight* per unit area). (2) interengagement of strands* or filaments* which means mechanically arranging one strand* or filament* alternately over and under other strands*, perpendicularly or angularly related thereto. If all strands* in one direction are on only one side of the strands in the other direction, this is not interengagement. Looping, intertwining, interweaving, intertangling are also included in the term interengaged.

(3) a composite* web* or sheet*, at least one component* being porous or cellular. (4) a composite*, web* or sheet* having the outermost layer of adhesive characteristics so as to be adhered to another surface.

F. Subclasses 411+ and 615+ provide for a composite* web* or sheet* which is characterized solely by the composition of the layers*.

G. Subclasses 539.5 and 540+ provide for stock-material* having a continuous phase of one material interengaged with a continuous phase of a different material, usually made by permeation or saturation. See the definitions and notes of these subclasses.

In addition there are provided in subclasses 900-941 cross-reference art collections of product patents based on use or particular characteristics indicated in the titles and definitions thereof. These collections of disclosures are not exhaustive but are intended as aids to a search based on ultimate function or use, as a supplement to a search in this class, or as an indication of further related fields of search inside or outside this class.

SCOPE OF CLASS

The scope of this class is defined by the residual state thereof as set forth in above.

It must be clearly understood that all patents to stock material products have not been removed from all those classes which provide for such products on the basis of their ultimate function, See below for an exemplary listing of such classes.

As to composites (subclasses 411+ and 615+), the disclosures of this collection of art (i.e., adhered bodies defined in terms of their respective compositions or compounds) are subdivided generally on the basis of pairs of contiguous bodies (conveniently referred to as "layer"*). Thus, for instance, a laminate composed of layers* A, B, C, in that order, is visualized as comprising the pairs A-B and B-C, the laminated, A, B, C, D as comprising pairs A-B, B-C, and C-D-- and so on. This arrangement is conceived of as facilitating the search for any multi- layered product, particularly for patent examination purposes. Whereas a search for substance A joined to substance C by an intervening layer* of B, in a system based on paired layers*, may produce a disclosure of A-B in one document and of B-C in another, or may retrieve a disclosure of A-B-C in one document, it is thought that all such disclosures should be available to the examiner for his consideration, whether in a single document or a

combination of documents. The utility of such as approach is apparent in the search for products including five, six, seven, or more layer* pairs or interfaces.

Additionally, it is believed that this concept of laminates as consisting of pairs of layers* may be incorporated readily into a machine retrieval system. Having in mind the ubiquity of layer* interfaces in modern technology--appearing in both laminated and molded plastics, protective and decorative finishes, wood and paper products, metal stock--the technique of subdividing into layer* pairs all disclosures in the voluminous literature of interfacial bonding, is seen to offer an effectual starting point for the development of a schedule of descriptors or a dictionary of terms for mechanical search.

It is an essential part of the considerations on which this paired-layer* schedule is based, that no weight is given to the alleged nature of any particular layer* as adherent or base. The disclosure of two particular layers* in mutual contact will be available for the searcher's consideration regardless of whether either, both, or neither is taught as being adhesive, bonding material, glue, impregnant, etc.

CRITERIA FOR PATENT PLACEMENT WITHIN THIS CLASS

The general procedure for placement of a patent in a class is set forth on in the Manual of Classification (note the exception set forth in the last paragraph of this section). Briefly, the basic principles which determine placement of the original copy of a patent in this class are:

A. Only claimed subject matter is relied upon, when comparing coordinate "first-line indent" subclasses (e.g., subclasses 98 and 221), for placement of a patent.

B. In subclass 1 through 223, 292.1 - 301.4, and 304.4 - 410,

1. the original copy of said patent will be placed in the first-occurring "first-line indent" subclass (of this class) which provides for the claimed subject matter: However, where said "first-line indent" subclass has a further indented subclass which specifically provides for either the claimed or disclosed more specific subject matter, the "original" copy will be placed in said further indented subclass;

2. as between coordinate subclasses (e.g., subclasses 156 and 174) which are indented under a "first-line indent" subclass, the original copy of a patent will be placed in the first-occurring of the coordinate subclasses which provides for (a) the claimed subject matter, or (b) the disclosed subject matter (in the absence of a claim drawn to the more specific subject matter as provided for in such coordinate subclasses);

3. further, the original copy of a patent will be placed in an indented subclass where the unclaimed but disclosed more specific subject matter is provided for in said indented subclass.

C. In the subclasses relating to specified physical dimension (e.g., 215+, 220, 332+, etc.), a range thereof qualifies even though the work "absolute" may be used.

Further, in a subclass which specifies the upper limit of a dimension, for example, subclass 334, in which the upper limit is specified as 5 mils (or equivalent), a range which transcends this limit is excluded therefrom and is placed in the appropriate higher subclass. Thus, for example, a composite* sheet* in which the coated layer* is recited as being in the range of 3 mils to 7 mils, is excluded from subclass 334 and is placed in subclass 332, unless reason exists for placement in subclass 339.

D. In subclasses 544+, the original is placed strictly on the basis of the claims. Where an indented subclass is provided, the original is placed in the indented subclass only when all of the claims have the limitations of that indented subclass.

E. The procedure for placement of a patent directed to a nonstructural laminate or composite will be that procedure now employed in the classification of classes of chemistry and is set forth under the definitions of subclasses 411 and 615 of this class (428). Procedures applicable to patent placement in the experimental "Markush"-type subclasses 643, 656, 661, 664, 669, 671, and 678 are given in the definition of subclass 643.

Once placement of the original copy of a patent has been determined, a cross-reference copy of the patent is mandatory in every subclass in this class or any other which provides for other claimed subject matter, except in instances where the sub-

class which would normally receive such cross-reference copy contains a search class note to the subclass in which the original copy has been placed, in which case only exemplary cross-references are provided. Cross-reference copies may be placed in any subclass where the disclosed subject matter is considered to render the document as useful reference.

When the original of the patent is placed in the article* or structural subclasses, a cross-reference copy will be placed in subclass 411, or subclasses 615+, where the disclosed subject matter is considered to render the document as useful reference. Similarly, when the original copy of a patent is placed in subclasses 323+, a cross-reference thereof will be placed in a superior subclass where the disclosure warrants.

CLASSES HAVING A DEFINED RELATIONSHIP WITH THIS CLASS

Completed articles* of manufacture, except for those expressly provided for in the schedule, are excluded from this class. However, in many cases the claims of a patent are directed only to "nominal" articles, that is, articles claimed only in terms of the composition or stock-material* from which they are made. It is the present policy of the Patent and Trademark Office to classify article patents, wherein the claims mention the article by name only and define it only in terms of the composition or material of which it is composed, in the appropriate composition or material class. The collection of these patents and reclassification thereof into the composition or material classes is under way, and as a corollary thereto, patents claiming a composition or material for an art use heretofore classified in the art classes are also being transferred to the appropriate composition or material class. For articles* provided for in other classes, attention is directed to the "Index to Classification", and to LINES WITH OTHER CLASSES, below.

AN ART INDEX OF COMMON TERMS AND EQUIVALENT TERMINOLOGY USED IN THE SCHEDULE.

The first appearing term, i.e., to the left of the colon, is the name used in the document and the term to the right of the colon is the corresponding name employed in the subclass titles of the schedule. The list provides an index to the schedule for laminates which are identified by trade names, trade marks and other terminology not employed in the schedule. The symbols # and 0 indicate that the term, on the right in the glossary, is an abbreviated form of that found in the subclass titles.

= aldehyde or keytone condensation product

0 = addition polymer from unsaturated monomers.

A

"A" Stage: = aldehyde# (phenolic); ABS, acrylonitrile-butadiene-stryrene:= unsaturated° (polyene) Acrylate, acrylic: = unsaturated° Airplane fabric = cloth*; Alkyd: = polyester Animal fiber or hair: = polyamide; Animal glue: = polyamide; Artificial silk: = cellulosic (regenerated or modified); Asbestos: = silicon containing; see definition; Asphaltic: = bituminous

B

"B" Stage: = aldehyde# (phenolic); Balata: = natural rubber; Balsam: = natural gum; "Beetle", "Beetleware": = aldehyde#; Birdlime: = natural gum

C

Canadian Balsam: = natural gum; Caoutchouc: - natural rubber; Casein: polyamide; Carbon Particles: = inorganic; "C" Stage: = aldehyde# (phenolic); "Cellopane": cellulosic (modified); "Celluloid": = cellulosic (modified); Cement: = silicon containing; Ceramic: = silicon containing; Chloroprene: = unsaturated° (polyene); Clay: = silicon containing; Cotten seed pitch: = bituminous or tarry residue.; Coumarone, coumarone-indene: = unsaturated° (heterocyclic); Creosote: = bituminous

D

Dextran: = carbohydrate; Dextrin: = carbohydrate; Dope (airplane): = cellulosic, (modified)

E

Enamel (not otherwise specified) - pigment varnish: = natural oil or gum; Enamel, porcelain: = silicon containing; Enamel, synthetic: = see under the appropriate synthetic resin; "Ethoxylene": = epoxy ether

F

"Factice": = natural oil (modified); Fiber (animal): = polyamide; Fiber (vegetable): = cellulosic; Fish glue: = polyamide; "Kel-F": = fluorinated addition polymer; Fish paper: = polyamide; Fleece: = nap surface; Flour paste: = polyamide unless specified as starch, which see; "Formica": = aldehyde; Friction tape: = bituminous or tarry residue; FR-S: = unsaturated° (polyene); Furfural: = aldehyde; Fur: = polyamide;

G

Gelatin: = polyamide; "Geon": = unsaturated° (halide); Glass: = silicon containing; see definition; Glass, water (i.e., waterglass): = silicon containing; Giladen (protein): = polyamide; Glue: = polyamide; Glue, Fish or Animal: = polyamide; Glue, Synthetic: = usually aldehyde; Goldbeaters skin: = animal membrane; Graphite: = inorganic; GR-S: = unsaturated° (polyene); Gum plastic, ABS: = unsaturated° (polyene); Gutta percha: = natural rubber; Gypsum: = calcium sulfate

Hair: = polyamide; Haloprene: = unsaturated° (polyene) "Hetron": Hexamethylenetetramine as a source of formaldehyde: = aldehyde#

Ivory: = polyamide

"Kodel": = polyester; "Koroseal": = unsaturated° ; "Kynar": = fluorinated addition polymer

Latex: = natural rubber; Latex paint: = unsaturated° (either ester or polyene); "Leatheroid" (paper-rubber-sandarac): natural rubber; Lecithin: = waxy; #aldehyde or ketone condensation product 0 addition polymer from unsaturated monomers.; "Lexan": = polycarbonate; Linoleum: = cork with natural oil, gum or rosin; Lycopodium: = natural oil or gum

M

Maleic acid or anhydride (used as a reactant): = unsaturated (anhydride is heterocyclic); Maleic acid ester (from polyhydric alcohol): = polyester (crosslinked); Maleic acid ester (from monohydric alcohol): = unsaturated° (ester)#; Melamine: = aldehyde; Mica: = silicon containing; Modacrylic: = unsaturated (halide); "Mylar": = polyester; Neoprene: = unsaturated° (polyene)

N

"Neothane": = poly(amido-ester); Nitro cellulose: = cellulosic (ester or modified); Nylon: = polyamide; Oil cloth: = see structural area (cross joined strands)

"Orlon": = a cyrylic (unsaturated°)

P

Paper: = a water laid web or interfelted natural celluloses fibers; Phenolic(s): = aldehyde; Pitch: = bituminous; "Plexiglas": = unsaturated° (ester); "Pliofilm": = natural rubber; "Plioflex": = unsaturated° (polyene); Polyamine: = aldehyde# (unless otherwise specified); Polyethylene: = unsaturated°; Polypropylene: = unsaturated°; Polyurethane: = see urethane; Porcelain: = silicon containing; Porcelain enamel: = see enamel, porcelain; Portland cement: = silicon containing; Protein: = polyamide; PVA (Polyvinyl acetate):° =unsaturated (ester); "Pyrex": = glass; Pyroxilin: = cellulosic (modified)

Quartz: = silicon containing

R

Rayon: = cellulosic (regenerated) (in strand or fiber form); Refractory: = see definition above; Rubber, pore: = natural rubber; Rubber, synthetic: = unsaturated° polyene; Rubber, synthetic, sulfide: = polythioether

S

SBR: = unsaturated° (polyene); Sand: = silicon containing; Sandarac: = natural gum; "Saran": = unsaturated° (halide); Silk: = polyamide; Soya bean oil: = polyamide; Starch: = carbohydrate; Stone: = silicon containing; Stone Wood: = cellulosic (wood); Suede: = Pile or nap surface; Synthetic glue: = usually aldehyde#; Synthetic rubber: = unsaturated° polyene; Synthetic rubber: sulfide: = polythioether

Talc: = silicon containing; "Telflon": = fluorinated addition polymer; "Terylene": = polyester ; Urethane: = poly(amido ester)

V

Varnish: = natural oil or gum, lac; Varnish, phenolic: aldehyde#; Varnish, synthetic: = aldehyde or cellulosic (as disclosed); Vegetable ivory: = cellulosic; Vinyl: = unsaturated°; Vinyon: = unsaturated° (halide); Viscose: = cellulosic (modified); Vitreous: glassy, silicon containing; Vulcanized fiber: = cellulosic (modified)

W

Water glass: = silicon containing; Water soluble thermosetting resin: = aldehyde#; Wheat paste: = polyamide, unless specified as starch (which see); Wood: = cellulosic; Wool: = polyamide

Z

Zein: = polyamide; Zylonite (celluloid): = cellulosic; "Zytel" (nylon): = polyamide

SECTION II - LINES WITH OTHER CLASSES AND WITHIN THIS CLASS

The organization of this section is as follows:

A. INTERMEDIATE ARTICLES* - 1. Packages, 2. Blanks, etc.

B. COMPOUNDS AND COMPOSITIONS

C. ARTICLES* AND STOCK-MATERIALS* - 1. Life-science related; 2. Textiles and related materials (a. Fibers, strands, rods, etc.; b. Interengaged fibers or strands; c. Belts, etc.; d. Associated fabrics; e. Textiles and their manufacture in general) 3. Static objects and materials (a. Receptacles, chambers, etc., b. Other hollow subject matter, c. Structures related to radiant or wave energy, d. Other structures and static objects); 4. Electric and magnetic elements, 5. Mechanical elements (a. Joints, b. Cutting, separating and related elements, c. Friction elements, d. Other machine elements); 6. Coating and coated products, 7. Assembling and/or shaping, 8. Other manufacturing and treating, 9. Miscellaneous devices

D. CLATHARATES AND INTERCALATES

In section II, the symbol # is used at the end of the definition to designate a class or part of a class which provides for certain stock-material*. Here follows the number and full title of classes which have been discovered as having a defined relationship with this class, as explained below in Subsection INTERMEDIATE-ARTICLES*, and in the subclass definitions:

A. INTERMEDIATE-ARTICLES*

1. Packages, Class 206, provides, in general, for mercantile units in which a plurality of articles* are held together by an extraneous element which is discarded before the article is used. A plurality of articles which are not yet detached from each other, being held together by material intrinsic to the material of which the articles are made, generally is classified in this class (428); however, Class 59, subclass 77 provides for a series of staple blanks which are partially shaped and integrally connected. Class 229, subclass 75 provides for a plurality of envelope blanks integrally connected in strip form. A package designed to be used or disposed of in toto is generally classified herein; see subclasses 2 and 576. See also the references to Class 252 in part B, below.

Stock material in roll or coil form, or wound in the form of a coil, will be classified in Class 428; however, any further limitations as to the roll, or coil or package, as for example, an overlapping roll edge, an edge or convolution taped or secured to an under layer*, or a detail as to the mandrel, etc., is considered to be significant structure for the roll and placement in Class 206, subclasses 389+ is indicated.

A separate and distinct interliner or sheet* wound into the convolutions and which is not ordinarily part of the stock material is considered to be significant roll structure for Class 206. A liner sheet adhered to a portion of a composite* sheet* or web* and rolled together therewith and removable is considered to be part of the stock material and proper for Class 428.

Generally, a product or stock material falling within the definition of this class (428) and further modified by the bare recital that such product or material (a) is in the form of a roll, reel, drum, coil, stack, pile, bale, etc., or (b) is within a container or in the form of a package is classified in this class (428).

For purposes of classification in Class 428, the coil, packaged or wound form is disregarded and placement is on the basis of the web*, sheet*, or other form of product or stock material.

See Class 206, subclasses 45.31+ for a pouch adapted to receive an identification card (unless of the paper envelope type, see Class 229, Paper Receptacles).

In regard to wall structure of Class 206-type receptacles, see part C,3,a, below.

A wound strand package is in Class 242, subclasses 159+, which also has a search note setting out its line with Class 206.

An intermediate-article* so shaped as to be suitable for handling is in this class (428); however, a claim to a pile or stack of such articles, when it does not form a work-

piece* which is subsequently worked as a unit, is in Class 214, subclass 10.5.

2. Blanks, etc.

A claim, even though stated to be a "blank" which describes or is readable on the structure of a completed article* is classified with the article*, for such a claim is either generic to both the blank and the article, and, therefore, considered to be best classified with the completed article, or is to a subcombination which is best classifiable within an appropriate subcombination class, or, if none, in the article class.

Class 2, subclass 143 provides for blanks which are to be used in making collars for garments.

Class 10, subclasses 11+ provide for bolt blanks, and subclass 62 provides for spike blanks.

Class 24, subclasses 20+ provide for a package tie which is a metal band which is to be bent, cut, or formed up to make a connection.

Class 36, subclasses 47+ provide for blanks used in the production of shoe uppers.

Class 59, subclasses 8, 12 and 35 provide for chain blanks, subclass 62 provides for horseshoe blanks, and subclass 77 provides for staple blanks which are partially shaped and integrally connected.

Class 63, subclasses 15+ provide for a finger-ring blank which already is a ring.

Class 76, subclasses 101.1+ provide for a metal tool or implement blank.

Class 101, subclasses 404.1+ provide for blanks for printing plates and printing members.

Class 138 provides for tube and ring blanks which are tubes which can hold fluid.

Class 150, subclasses 127+ provides for blanks used in making pocketbooks.

Class 220, subclasses 62+ provides for a can or other metallic receptacle blank.

Class 229, Envelopes, Wrappers, and Paperboard Boxes, subclasses 100+ for a blank for forming a paperboard box.

Class 248, subclass 248 provides for a blank from which a sheet-material supporting bracket can be made.

B. Compounds and Compositions

A patent claiming a single layer*, film, filament*, or fiber*, or a mass*, with a limitation to the material(s) of which it is comprised, but with no recitation of significant structure, will be placed in the appropriate compound or composition class. The following are considered to be significant structure:

1. An external configuration which is not planar or cylindrical, e.g., aperture, fold, varying thickness, etc.

2. The recitation of a numerical dimension or designation of metal as a foil or leaf

3. A product composed of at least three layers*.

4. A coated strand, wire, fiber, filament, rod or strand.

5. An interconnected void structure.

6. Porosity in a nonparticulate metal.

The following are not considered to be significant structure:

1. Random distribution of elements* such as fillers or reinforcements (e.g., fibers*) within a product or randomly disposed pores or cells (i.e., no particular pattern or arrangement) in a porous, cellular or foamed product, wherein the overall structure is neither limited nor influenced by these elements*, even though the elements* or pores themselves may have structural limitations.

2. Internal characteristics, such as crystalline form, molecular orientations, etc., when such characteristics have no relation to the shape of the product.

3. The presence of the composition as a coating on an unnamed substrate.

A product described by a functional or chemical name only (e.g., table, wood, etc.) is not considered to have significant structure; however, limitations such as plywood (indicating layers*), tables with legs, etc., are considered to define structural limitations.

Also, a patent for a product where the presence of structure (e.g., cellular) or the degree thereof is a mere manifestation of the material or composition will likewise be

placed in the appropriate material or composition class. Further, a product defined in terms of its properties (e.g., tensile strength, elongation) is not considered a "structurally defined" product, as provided for in this class.

In regard to a patent which has a claim to a product which is classifiable in this class (428), subclasses 411+, but which recites no significant structural limitations, and a claim to a coating material compound or composition which is included in at least a part of the claimed product, and claim to a significant process of coating, the patent is classified according to the coating material.

The rules for determining Class placement of the Original Reference (OR) for claimed chemical compositions are set forth in the Class Definition of Class 252 in the section LINES WITH OTHER CLASSES AND WITHIN THIS CLASS, subsection COMPOSITION CLASS SUPERIORITY, which includes a hierarchical ORDER OF SUPERIORITY FOR COMPOSITION CLASSES.

The enumeration of classes below, in general, follows the priority list of Class 252 and covers some additional classes. Thus, this enumeration is not authoritative insofar as priority of classes is concerned. The definitions of these classes should be studied to determine the proper placement of patents therein.

Class 504, subclasses 116+ provide for plant growth regulating compositions and subclasses 101+ provide for a fertilizer containing an insecticide, fungicide, or deodorant.

Class 424 provides for drug, bio-affecting and body-treating compositions. Subclasses 1.21, 1.25, 1.29+, and 400+ provide for some articles* and stock-materials* which contain a composition of that class. A stock-material* suitable for this class (428), containing a Class 424 composition to preserve the stock material itself from biological attack, is in this class (428). Residual methods for preserving, disinfecting or sterilizing stock-materials are in Class 422.

Class 426 provides for food, beverages and other edible compositions, and certain edible articles* and stock-materials*.

Class 71, provides for fertilizers.

Class 208, subclasses 14+ provide for compositions made up exclusively of mineral oil components.

Class 585, subclasses 1+ provides for compositions made up exclusively of hydrocarbons or a hydrocarbon with a preservative, etc.

Class 149 provides for explosive and thermic compositions and charges, subclasses 2+ providing for one in which at least one ingredient has a particular shape or structure, and subclasses 14+ for one having at least two separate and distinct superimposed or contiguous layers or forms of different components or of components having different properties. The layers must be in direct contact and not be separated by a space or by a nonexplosive or nonthermic body.

Class 508, subclasses 100+ provide for shaped lubricants and massive rigid solid bodies, including bearings, which carry a fluent lubricant, and subclasses 110+ provide for lubricant compositions generally.

Class 44 provides for fuel compositions and some combustible fuel articles* and stock-materials*.

Class 148, subclasses 240+ and 22+ provide for certain compositions for treating solid metal, and subclass 400.1 for certain stock-materials* and compositions produced by a process of that class (148). See the references to this class in parts 4 and 6, below.

Class 75, subclasses 228+ provide for consolidated metal powder compositions, in subclasses 251+ for loose metal powder compositions, and in subclasses 95, 256 and 257 for certain additives for molten metal.

This class (428), subclass 576 provides for a shaped article* to be melted in a metallurgical furnace.

Class 252, in subclasses other than those listed above or below, provides for special utility compositions. In most cases, Class 252 provides for compositions having a random mixture of components, while stock-materials* are classified in this or another stock-material class. However, it is noted that some subclasses in Class 252 provide for more than mere compositions; for example, subclass 176 provides for packages and heterogeneous arrangements of water-softening and related-function compositions.

Class 510 provides for cleaning compositions and auxiliary or perfecting compositions therefor, while certain subclasses therein, such as subclasses 404, 438+, etc., provide for packages or heterogeneous arrangements, while subclasses 445+, etc., provide for solid, shaped macroscopic articles or structures.

Class 106 provides for a composition which is in fluent

or solid noncoherent form which is adapted for coating or impregnating and for change to a less fluent form, or solid coherent form, by setting (e.g., concrete, plastic, etc.), by chemical reaction, by removal of solvent, by solidification from a molten state, etc. In a patent directed to a filler or pigment for a coating composition, the recitation of size or structure of the constituent* particles or fibers is not sufficient to exclude said patent from Class 106. See especially subclasses 36, 117, 235, 241, 251, 253+, 266, 272, 275, 276, 280, 281+, 288+, 636, 784, and 816.

Class 51 provides for abrading composition or some stock material; see especially subclasses 294, 295, and 297 for other abrasive stock material, or for a method of making abrasive material such as "sandpaper."

Class 451 provides for abrading materials in usable form, as a "tool" under that class definition. For example, subclasses 526+ provide for "sandpaper."

Class 260, subclasses 2+ and 520 Classes provide for a synthetic resin or Natural Rubbers (spinnable, film-forming, etc.), and Class 260, subclasses 709+ provide for a vulcanizable natural gum (e.g., rubber).

Under certain circumstances, the relation between Class 260, 520 Classes and Class 428 shifts between combination and subcombination. For example, the subcombination of a resin composition is in Class 260 and 520 Classes; a layered product structurally defined and containing the resin composition as a layer is now a combination which is classified in Class 428. However, the combination of the layered product and a resin, when the layered product is used as filler for the resin is again classified in Class 260 and 520 Classes as a resin composition.

Class 252, subclasses 299.01+, 625+, 363.5, 367.1, 372+, 378, 182.11+, and 183.11+ provide for compositions on a nonfunctional basis.

Class 423 provides for inorganic compounds, and in subclasses 265+ provides for compositions having an inorganic compound and an agent which improves the general utility of the compound.

Class 430, Radiation Imagery Chemistry: Process, Composition, or Product Thereof, appropriate subclasses for stock material and products which are radiation sensitive and limited to use in imagery and a finished imaged article chemically defined. A claim to a finished picture or photograph is classified in Class 428.

Class 520 provides for synthetic resins, natural rubbers, compositions and modifications thereof.

C. Articles* and Stock-materials*

1. Life-sciences related materials.

Classes 3, 47, 433, and 449 take articles*, but not stock-materials*. A cut, natural plant, treated to prolong the characteristics of life, is in class 47, and that class (47) provides for the combination of a receptacle and a cut plant either treated or with means to prolong the characteristics of life.

Class 128 is the locus for a patent directed to a stock-material* product when (1) solely disclosed to be worn by, or attached to, the body (e.g., sanitary napkin, diaper, etc.) and to be a receptor for a body discharge (2) solely disclosed as a shield or protective device to be worn on, or attached to, a body member or part (e.g., bandage, dressing, etc.) and having a therapeutic use or (3) a patent to a stock-material* product whose disclosure includes a Class 128 utility as set out above or in the class definition thereof, and a general utility for Class 428, but in which one claim is specific to the Class 128 disclosed use.

2. Textiles and related materials

Certain textile manufacturing classes provide for their own products, and Classes 2, 5 and 245 provide for products only, while some other textile products are provided for in this class.

a. Fibers, strands, rods, etc.

Class 19, subclasses 144+ provide for a process of, or means for, assembling fibers* together into a lap, sliver or web*, with some other material. Stock-material* products of a Class 19 process are classified in this class (428).

Class 52, subclasses 720.1+ provide for a miscellaneous article* which is an elongated, rigid structure. See also the reference to Class 52 in part 3d, below.

Class 57, subclasses 200+ provide for a stock-material* strand* consisting of, or comprising, a claimed twisted or twined constituent*; or for a stock-material* product (e.g., web*, sheet*, etc.) distinguished only by such twisted or twined strands* (as claimed) employed in the manufacture thereof, or a stock-material* product comprising coated or impregnated strands* in which the

coating or impregnation took place prior to assembly of said strands* to form the product, no matter how the twist was made, whether by a Class 57 process or apparatus or otherwise.

The "twist" or its equivalent term is applicable either to plural fibers* or filaments* which are twisted about each other, or to a monofilament which is turned or twisted about its longitudinal axis. A crimped fiber is classifiable in Class 428, the crimp being out of the plane of the fiber.

This class (428) does not exclude a yarn, strand*, or other constituent* unless the claim recites at least a "twist" or its equivalent; or a property due to, or resulting from, twisting a fiber* or filament*. There are certain terms which have been accepted as denoting a twisting fiber* or filament*, and, if used in a claim, classification in Class 57 is indicated, provided all other requirements therefor are met. Some of these terms are:

i. plying, doubling, twining, twisting (all such terms are considered to be synonymous) and indicate turning about the longitudinal axes of the fiber* filament or yarn or bundles of yarns;

ii. filament looped upon itself;

iii. turns of twist per inch;

iv. false twist;

v. twist to treat, followed by untwisting;

vi. spun staple fiber yarn e.g., wool, cotton, etc.;

vii. "Z" or "S" twists or piles;

viii. roving.

In the event of a disclosure which includes (1) "twisted" strands, fibers, filaments for Class 57, and (2) nontwisted elements proper for Class 428, the following guidelines are to be followed in accordance with the claims:

1. A claim generic to both modifications will be classified in Class 428 as an original with a cross-reference, if needed, to Class 57.

2. A claim specific to either the twisted or nontwisted fibers will be classified in Class 428 or Class 57, respectively, with a proper cross-reference to the other class as needed.

3. A claim to the twisted Class 57 modification and a claim to the nontwisted product will be classified as an original in Class 428 with the proper cross-referencing.

Class 84, subclasses 199 and 297+ provide for strings for musical instruments.

Class 256, subclasses 6+ provide for barbed-strand fence stock-material*, and in subclass 46 for analogous nonbarbed stock-material*.

Class 464, Rotary Shafts, Gudgeons, Housings, and Flexible Couplings for Rotary Shafts, subclasses 51+ provides for flexible shafting; and subclasses 179+ provides for rigid shafting.

b. Interengaged fibers or strands

Class 59, subclasses 78+ provide for a chain formed of linked elements.

Class 66, subclasses 69+ provide for a knitted article or stock-material*, and especially subclasses 190+ for stock-material* including knitted material with nonknitted material held in its loops.

Class 87, subclasses 1 through 13, provide for (1) stock-material* which consists of, or includes, a braid, net, or lace component, or (2) a product resulting from an operation(s) within the scope of that class (87), which product is either coated or combined with a material which is the product of an operation beyond the scope of Class 87 (e.g., lamination, etc.).

Class 131, subclasses 321+ provide for stock-material* specified as being a filter and of indeterminate shape (e.g., mass), or approximating the shape (e.g., coil, tube, cylinder, rod*, etc.), of the article or appliance with which it is intended to be used, requiring no further treatment than tearing or cutting to proper size* stock-material* of any other shape, recited so that some shape modification is required, is classified in Class 428.

Class 139, subclasses 383+ provide for a single or plural layer* woven stock-material* product made only by a Class 139 process and no other operation. A patent directed to a woven product possessing deformed, coated or impregnated strands will be placed in Class 139 where the sole disclosure is that a coating, impregnation or deformation of the constituent strands took place prior to the weaving.

Two layers woven together are classified in Class 139.

Two woven layers adhered together are classified in Class 428, one layer of woven material next to a layer of nonwoven material is classified in Class 428.

Class 162 provides for a nonstructural (1) single-layer* waterlaid fibrous product, (2) plural-layer* product including a layer* of fibers* applied to a second layer* by a process provided for in that class (162), or (3) paper homogeneously impregnated throughout, even after the web* is formed, and note particularly subclasses 141-181.1+, which include any nonstructural fiber* (or fiber-containing) product (e.g., particular blend of fibers*), whether waterlaid or not. Also, see notes in Class 162, referring to Class 428, e.g., Class 162, subclasses 141 and 150 for examples of structural fibers. This class (428), subclass 596, provides for metallic wire cloth formed by welding plural all-metal wires at their points of intersection; in subclass 605 for a mass of metal fibers, including plural layers of wire cloths joined by mechanical compression and sinter bonded into a fibrous mass, and in subclass 608 for a mass which includes metal wires, strands or strand portions mechanically intertangled, interwoven or interlooped, coated with a metal or a layer of metal or nonmetal fibers located between two metal layers.

Class 245 provides for a wire fabric* which is the product of a bending or analogous wire-working operation.

Class 256, subclass 5 provides for barbed-fence fabric*, and in subclass 45 for analogous nonbarbed material.

Classes 289, subclass 1.2 provides for an interlacement (knot) of portions of one or more elongated flexible elements (e.g., strand, rope) forming a tie or fastening and including any bend or hitch.

c. Belts, etc.

Class 198, appropriate subclasses provide for an endless conveyor belt or a stock material* disclosed solely for use as a conveyor belt.

Class 474, appropriate subclasses provide for an endless power transmission belt or a stock material* disclosed solely for use as a power-transmission belt.

Class 162, subclasses 348+ provide for a flexible endless band-type paper-making mold of the Fourdrinier variety.

Class 400, subclasses 237+ provides for an inked typewriter ribbon.

d. Associated fabrics

Class 2 provides for a stock-material* product of that class, and especially subclasses 244 and 274, respectively, for an apparel trimming or binding, and 260 for coated stays or stiffeners.

Class 5, subclass 500 provides for a stock-material* product solely disclosed for use as an underpad or cover pad for a mattress, and which protects the mattress by receiving discharges of the body, for example, infants or hospital patients. Those cover pads are usually made of absorbent material.

Class 112, subclasses 400+ provides for sewn stock-material*, except for sewn stock-material* which includes a discrete mechanical fastener(s), a coating, or an adhesive bond, for which see subclasses 102+ of this class (428).

e. Textiles and manufacture thereof in general

Class 8 provides for a process of (1) dyeing or bleaching stock-material*; (2) treating hides, skins, feathers, or animal tissue with chemicals or fluids; (3) improving the felting properties of fibers*; (4) treating textile* fabrics* or fibers with fluids, with or without chemical modification of the treated material; or (5) a product resulting from any of the processes above, where not specifically provided for elsewhere. Structured stock is classified in Class 428, Stock Material or Miscellaneous Articles, or other appropriate class.

Class 26 provides for mechanical, nonliquid treatment of textile* fabrics* (e.g., napping), subsequent to fabrication, which is not provided for elsewhere. Stock-material* products of a Class 26 process are provided for in this class (428).

Class 28, subclasses 72+ provide for a mechanical textile* process not elsewhere provided for, a combination of such a process with another textile* operation or with a nontextile* operation provided for in some other textile* class with a nontextile* operation where such combination is not specifically provided for in the other textile* class. Stock-material* products of a Class 28 process are provided for in this class (428).

Class 140 provides for processes of wire-working, e.g., uniting, shaping or deforming, but generally not for the products thereof. For the line between Class 140 and the other textile classes, see the main class definition of Class 140.

3. Static objects and materials.

a. Receptacles, chambers, etc. Articles* in the form of receptacles or chambers are provided for in a number of classes and portions of classes, the most important of which are listed below. Those which also provide for sheet* or web* material, claimed in terms of significant wall structure, are indicated by the symbol "#". Significant wall structure includes seam structure (not merely the composition of the seam and adjacent portions), spaced wall components, etc. Also significant for placement in the classes marked "#" is specified wall structure in relation to the container (e.g., inside or outside). Thus, a coated or laminated wall in which the composition of a layer is recited as being on the inside (or outside) of a container is considered to be significant wall structure and placement in classes marked "#" is indicated.

See reference to Class 138 in this section for examples of wall structure which would also be considered to be significant for placement in such classes, and for example which would not be so considered.

Class 123 provides for certain chambers in an internal combustion engine.

Class 126, subclasses 19+ provide for ovens.

Class 164, subclasses 349+ provide for sand molds, and subclass 374 for a flask section to be used in a metal-casting operation.

Class 206 provides for a special receptacle.

Class 215 provides for bottles and jars.

Class 217 provides for wooden receptacles.

Class 220 provides for receptacles in general, and for metallic receptacles in particular. See subclasses 23.9, 62.21, 574.3, 495.01+, and 908.1+ for a receptacle having a liner.

Class 229 provides for paper receptacles. See especially subclass 71 for a paper-like display envelope for receiving an identification card, and other appropriate subclasses for receptacle structure as provided for therein; a coated wall structure, where the coating is specifically defined to be either on the inside or outside of the bag or receptacle will be considered receptacle structure and will indicate placement in Class 229. This coating may be for the purpose of acting as a vapor barrier, waterproofing layer, or antislide means, etc., and is especially related to the contents of the bag or receptacle.

Class 249 provides for articles* which are static molds.

Class 266, subclass 39 provides for articles* which are receptacles for treating molten metal.

Class 432, subclass 247 provides for an article* which is a heating or heat-retaining chamber.

b. Other hollow subject matter.

Class 89 provides generically for an article* which is a gun, shield or gun mount.

Class 138 provides for an article* which is a tube and for tubular stock-material* in which the claims include a limitation regarding wall structure. A claim which recites a particular composition as being the inside or outside wall of a tube is considered to be significant wall structure and placement in Class 138 is indicated. However, a claim which recites a tube or conduit having two or more layers* and then recites the compositions of the layers*, but does not specify which layer is inside or outside, is not considered to include significant wall structure and will be placed in Class 428. Examples of significantly recited coated wall structure for classification are:

1. A tube having a wall comprising a layer of metal and on the outer (or inner) surface thereof a layer of polypropy lens.

2. A tube having a laminated wall of three layers, in order from the inside to the outside, comprising polyethylene, epoxy, and polypropylene.

Examples of coated or laminated wall structure which are not significantly claimed and which indicate classification in Class 428.

1. A tube having a wall structure comprising a layer of metal and a layer of polypropylene.

2. A tube having a laminated wall of three layers comprising, in order, polyethylene, epoxy, and polypropylene.

Class 239, subclasses 548+ provide for a unitary plural-outlet means, and subclass 589 for a rigid fluid-confining distributor for ejection of fluents and slurries by slinging, sloshing, centrifugally throwing, etc., such material in the form of fog, mist droplets, etc.

384, Bearings, subclasses 276+ provide for an article* which is a bearing sleeve, or liner. See also the reference to Class 508, above.

Class 406, subclass 191 provides for conduits for fluid-current conveying.

c. Structures related to radiant or wave energy

Class 181, subclasses 33+ provide for an article* or a stock-material* with particular claimed structure (either internal or external) for the purpose of deadening, attenuating, or amplifying sound.

Class 250, subclass 515.1 provides for an article* which is a radiation shield.

Class 274, subclasses 41+ provide for a stock-material* having significant structure disclosed for receiving records of sound or having such records formed therein or thereon.

Class 333 provides for an article* of use in an electrical wave transmission line or network.

Class 343 provides, especially in subclasses 741+, an article*, e.g., an antenna, used in radio-wave communications.

Class 359, subclasses 36+ provides for a liquid crystal device, per se, which controls light direction or intensity by (1) deforming or relatively displacing portions of, or changing the shape or size of an optically reflecting or transmitting medium, surface or interface, or (2) changing the composition, internal structure, or the physical or chemical properties of such a medium, surface or interface, and in subclasses 838+ for a mirror having claimed optically significant structure, e.g., concave, convex, polarizing, selectively absorbing, optically critical thickness, etc. A plural layer product, one layer of which merely acts as a support or base for a coating which affects the transmission of light therethrough, which one layer is uniformly opaque or transparent or translucent, is excluded from Class 359, and will be found in the appropriate subclasses of Class 428, see especially subclass 426.

Class 369 provides for a record of information which is to be reconstructed dynamically by other than magnetic means. See, in particular, subclasses 272+. A disc with/without grooves which does not include recorded information is classified in Class 428, subclasses 64.1; and see especially subclass 908 for a collection of stock materials having an impression retention layer. Class 430 provides for a finished photograph which is chemically defined. See the note to Class 428 in the main class definition of Class 430.

Class 422, Chemical Apparatus and Process Disinfecting, Deodorizing, Preserving, or Sterilizing, appropriate subclasses for certain receptacles and chambers in which a chemical reaction takes place.

d. Other structures and static object. A patent to a rigid laminate or stock-material* merely defined as a building component, e.g., floor, wall, stile, etc., will be placed in Class 428.

Class 40, subclasses 39+ provide for a fluid-operated, rotatable-changeable exhibitor which may resemble a special occasion ornament for Class 428, and subclasses 7+ and 156 for a frame, as defined therein, with or without an identification card therein, and not having any specific printed indicia thereon; see also the reference to Class 283, below.

Class 49, subclasses 440+ provide for a channel guide of stock-material* with specific structure to facilitate securing it to a support, and subclasses 475+ for a closure seal or striker gasket of stock-material* provided with means for attachment to a support.

Class 52, provides for a product in the form of a web* or sheet* generally employed as a portion of a building structure and including (1) a stiffener or edging extending along a face thereof, or (2) means facilitating securement of the web or sheet to a support, e.g., a flange at the edge of a panel for receiving a nail, or fastener apertures at the edge of a panel. Class 52 also provides for: a composite panel formed of separate sheets which are secured together by a mechanical fastener; a composite panel having spaced facing sheets with inturned, opposed flanges that form an edge of the panel; and a panel which interfits with a support such as a frame or shaft. See, particularly, subclasses 98+ for a fracturable building component, subclass 105 for a component with indicia, subclass 177 for a component having a specified wear or friction surface, subclasses 311.1+ for an ornamental or decorative component, subclasses 393+ for a yieldable component, subclasses 474+ for a panel held by a preassembled or prepositioned frame or shaft, subclasses 596+ for a stone-like module, subclass 631 for a bent component, subclasses 633+ for an openwork component, subclasses 656 for a frame, per se, subclasses 716.1+ for an in situ attached-type channel or trim member, and subclasses 782.1+ for a composite laminate with a disparate edging or an imperforate face.

Class 109 provides for safes and components thereof, bank protection and related devices, and in subclass 495 provides for a shield or protector for preventing a projectile, or knife or sword, or bomb fragment from contacting a person or thing. This could be a portable device or one which attaches (i.e., has attaching means such as belts, straps, etc.) to a bomb for containing the fragments.

Class 160 provides for a panel structure for use in a flexible or portable closure or partition, especially in subclasses 385+ for fabric having a modified edge (e.g., loops) for attachment to an elongated support.

Class 180, subclass 68.6 provides for an article* which is a motor vehicle radiator protector.

Class 228, subclass 56 provides for a metal article* useful as filler material in a metal fusion bonding operation.

Class 238 provides for an article* which is a railroad rail.

Class 248, subclass 248 provides for an article* which is a shelf support made from a single blank. The blank itself is classified in this class (428).

Class 283, subclasses 74+ provides for an identification card having printed matter thereon.

Class 404 provides for a road or pavement which has structure peculiar for pedestrian or vehicular traffic. A laminated or layered* product with no structure which peculiarly adapts it for use for vehicles or pedestrians, such as a crown, grading, contour, etc., is classifiable in Class 428.

Class 405, subclasses 276+ provide for metallic sheet piling.

Class 425, subclass 470 provides for a shaping or casting surface for nonmetal material.

Class 588, Hazardous or Toxic Waste Destruction or Containment, subclasses 249-260 for permanent containment of hazardous or toxic waste, particularly subclasses 252+ for solidification, vitrification, or cementation.

4. Electric and magnetic elements. The classes listed below, with the exception of those marked with the symbol "#", do not provide for electric or magnetic stock-materials*. The marked classes or portions of classes provide for stock-material* only when such material has a claimed internal or external structure which makes the material of utility only in a single class. In general, an electrode is either an article* for the classes listed, a stock-material* for this class (428), or a composition for a composition class, notably Class 75, or Class 252, subclasses 500+.

Class 136, subclasses 236+ provide for thermocouple junction stock-material*.

Class 148, subclasses 33+ provide for P-N junction stock-material* made by a process of that class.

Class 174 provides for stock-material* in the form of an electrical conductor with a covering of dielectric material wherein the conductor includes structure disclosed to be specially designed to conduct electricity, or the dielectric includes structure disclosed to be specifically designed to space the conductor from ground or from a device of otherwise different potential.

Class 191, subclass 22 provides for conductive articles* specifically designed to transmit electricity to vehicles.

Class 200, subclasses 262+ provide for electric switch contact elements which go beyond stock-materials*, e.g., by having two spaced conductors, etc.

Class 204, subclasses 194+ for articles which are elements of an electrolytic apparatus.

Class 219, subclasses 145+ and 552+ provide for articles* which are electric heating elements.

Class 257, Active Solid-State Devices (e.g., Transistors, Solid-State Diodes), provides for electronic devices or components that are made up primarily of semiconductor materials which operate by the movement of charge carriers - electrons or holes - which undergo energy level changes within the material and can modify an electrical input to achieve rectification, amplification or switching action. A mere named combination of doped semiconductor materials where the sole use of the device is disclosed as an active solid state device results in classification in Class 257. Recitation of electrical contacts or leads is not necessary to classification in Class 257.

Class 310, subclasses 248+ provide for articles* which are electric generator or motor brushes.

Class 313, appropriate subclasses, especially subclass 326, provide for electrode structure for electric lamps

and other discharge devices which are defined by their structure for in such devices. A mere recitation of a wire, rod, strip, cylinder, etc., is not considered to be structure for Class 313, nor is a recitation only of the electrode composition or of a base and/or coating. Non-metallic* rods, strands, fibers, etc., which are structurally defined, but do not include structure for use as electrodes for lamps, are found in Class 428, subclasses 357+; note especially subclasses 375+ for coated rods, strands, fibers, etc. A plurality of electrodes, unless specifically related structurally to each other or to other structure, for use in a lamp or discharge device will be found in Class 428, appropriate subclasses.

Class 317 provides for articles* of use in electrical applications not provided for elsewhere.

Class 318 provides for articles* used in electric-motive power systems.

Class 335, subclasses 296+ provide for a magnet or magnetic material (including structure, e.g., lamination of work at least two magnetic layers disclosed for use as a source of magnetic flux for performing external work).

Class 336, subclasses 233+ provide for a core or magnetic body comprising superimposed bundles or layers of magnetic material in the form of sheets, rods, or wires, and for single sheets, punchings, rods, or wire which have such configuration that they have no utility except in building up of a core or coil for use in an inductor device within the class definition (e.g., transformer, etc.).

Class 337, subclass 379 provides for an article* which is a bimetallic element of a thermally actuated switch. This class (428), subclasses 616+ provide for bimetal thermostat stock-materials*.

Class 338 provides for electrical resistor stock-material* which is claimed in terms of its resistance characteristics.

Class 340 provides for articles* used in electrical communications.

Class 360 provides, especially in subclass 131 for a product, which may be layered or otherwise structured, which is particularly or uniquely designed or arranged to store or record information by a change or variation in the magnetic state of the device. The line between Classes 360 and 428 is as follows:

Class 379 provides for article* used in telephony.

1. A product recited as magnetic tape or storage will not suffice to place a patent in Class 360 in the absence of recitation of structure of the overall product or internal structure of the material, or function, unique to magnetic memory or recording.

2. Layered products of general utility or otherwise not provided for utility are classified in Class 428. A patent disclosing both a Class 360 and a Class 428 function, and in which the claims are generic to both disclosures on which has a claim specific to the Class 428 disclosure will be placed in Class 428 as an original.

(1) Note. The following examples are set out to serve as guidelines in determining placement of patents:

(a)improved adhesion of magnetic layer to base, greater tensile strength of the layer (s) abrasion lubricated surface, improved flexibility, etc., are not considered to be be structure or properties peculiar to information recording or structure;

(b)structure which is directed to improved signal-to-noise ratio, signal stability, non-destructive readout (N.D.R.O.), nonprint through of signal, signal identity, hysteresis loop, orientation or packing density of magnetic signal is significant for Class 360, and patents claiming such structure or function will be so classified.

Class 429, subclasses 40+ provide for a catalytic fuel cell electrode structure, subclasses 129+ and 247+ for a battery separator or retainer, subclasses 209+ for a battery electrode and subclasses 233+ for a battery grid.

Class 439 provides for articles* which are electrical connectors. See the introduction to part 5 a, below.

5. Mechanical elements

a. Joints. Those classes or portions of classes which provide for joints and connections, viz, Class 160, subclass 42, Classes 277, 285, 403, and 439 take a connection or seal between two or more members at substantially a single locus where the structure or shape (e.g., ring, flange, angular relationship, etc.) of at least one of the members is specifically recited. For a mere joint or connection between two members defined merely by the composi-

tions of the members, see this class, appropriate subclasses, particularly subclasses 630+ and 426+ where glass is one of the members.
Class 15 provides, in appropriate subclasses, especially subclasses 208+ for stock-material* product disclosed solely for use as a wiper, dauber or polisher for brushing, scrubbing and general cleaning.
Class 29, subclasses 76.1+ provide for an article* which is a file or rasp, and subclasses 95+ provide for an article* which is a cutter.
Class 30 and Class 83 provide for articles* which are cutting implements appropriate to each class.
Class 51 is referred to in part B, above.
Class 55 and 210 provide for filters, especially subclasses 522+ of the former and 500+ of the latter for such filter product manufactured of or including a specific material (e.g., fiber*, coating, etc.), or possessing specific structure (e.g., weave, knit, etc.). Class 55 takes its own stock-material* when it specifies that a gas separation takes place or is about to take place. In Class 210 there must be claimed structure, internal or external, restricting the stock-material* to filter use. A filter generic to Classes 55 and 210 is placed in Class 210.
Class 131 is discussed in part C, 2, b, above.
Class 241, subclass 95 provides for a stationary comminuting surface having openings.
c. Friction elements
Class 188, subclasses 250+, and Class 192, subclasses 107+ provide for a product with a frictional property, where said property is enhanced by claimed structure (external, such as disc surface configuration, or internal, such as discrete zones of friction material, particular arrangements of strands, fibers or layers), where the sole use disclosure is as a brake for Class 188, or as a clutch or brake for Class 192. Where the use of the product goes beyond these classes, or there is no claim to brake or clutch/brake features, placement in Class 428 is indicated. See also the reference to Class 52 in part C, 3, d, above.
d. Other machine elements
Class 101 provides for a product which is disclosed as a printing plate and has significant structure for printing (see subclass 395), or a nonuniform (e.g., hydrophylic-hydrophobic) coating only for printing purposes (see subclasses 453+), or a hectographic surface (see subclass 473).
Class 152, subclasses 151+ provides for a resilient tire, subclasses 548+ for such tire formed of a particular material(s), and subclass 367 for a tire patch.
Class 346, subclasses 134+ provide for a single or plural layer web or sheet which is disclosed as a record receiver solely for use with apparatus provided for in (1) and (2) of the definition of that class.

(1) Note. A web or sheet disclosed as a record receiver of general utility, or for multiple uses, at least one of which is other than for a recorder apparatus provided for in Class 346, is classified in the appropriate subclass in Class 428, with a cross-reference to Class 346, if appropriate.

(2) Note. A web or sheet which has chart graduations thereon will be assigned to Class 346, subclass 135.1, regardless of its disclosure.
Class 411 provides for expanded, threaded, headed, or driven fasteners.
Class 416, subclasses 223+ provides for an article* which is an impeller or turbine blade.
Class 492, Roll or Roller, provide for rolls and rollers which claim enough of the surface and support structure to rotatably mount the roller. Hollow cylindrical rollers follow the line specified with regard to Class 138 in part C, 3, b, above.
6. Coating and coated products.
Class 148, Metal Treatment, subclasses 206-238 provide for processes of carburizing, nitriding, or both (e.g., carbonitriding, etc.) of solid metal, and subclasses 316-319 for the resulting stock.
Class 204, Chemistry: Electrical and Wave Energy, provides for the manufacture of stock-material* products by chemical processes involving electrical or wave energy, and except for products classifiable in this class (428), subclasses 544+, for a stock-material* product disclosed solely as made by a process which, per se, would be classified in Class 204. A multiple disclosure that the product can be manufactured by

either a Class 204 process or another process (e.g., spray coating, electroless-depositing, etc.) indicates original classification in another class (e.g., 428, etc.), with a cross-reference, as needed, to Class 204.

Class 420 provides for alloys and compositions having a ontinuous phase of metal.

Class 427 provides for the method of applying a coating or impregnation to a substrate.

In relation above, the following guidelines are to be followed in determining whether a process step is significant for determining the classification of a patent containing only process claims in either Class 427 or Class 428:

(a) Any pretreatment or post treatment of a base or applied coating is significant, e.g., curing, drying or smoothing of the coating, or cleaning, drying or heating of the base, etc. General statements such as applying, impregnating, coating, covering, etc., or allowing to cure, allowing to dry, etc., are not considered to be significant method steps.

(b) Any specific recitation of the manner in which the coating material is applied, e.g., brushing, dipping, padding, spraying, immersing, is significant.

(c) Any limitations regarding the thickness of a coating or nonuniformity of a coating resulting from a process is considered to be significant.

(d) Specific recitations as to the condition of the coating material being applied are significant, except for the following: (1) Any condition also included in an independent composition or material claim, such as p4 concentration, etc.; (2) A general reference to the state of the coating material as molten, in solution, in an organic or inorganic solvent, etc., unless accompanied by specific limiting conditions such as time or temperature (even though recited as ordinary temperature or room temperature, etc.). However, specifically recited solvents such as benzene, carbon tetrachloride, sulfuric acid, etc., are considered to be significant.

Any patent having only process claims in which at least one significant limitation is recited, examples of which are given above, is placed in Class 427. All process claims having no significant limitation recited will be placed in Class 428.

Special Note in relation to Class 427:

As a general rule, specific subclasses in Class 427 are not pointed out as pertinent fields of search. Class 427 should be considered, in all instances, for the disclosure of a product made by the process in the appropriately titled subclass.

7. Assembling and/or shaping. In general, the products of the following classes which provide for assembling and/or shaping methods are not classified in these classes, but in this class (428), or other appropriate product class: Classes 29, 65, 72, 76, 79, 82, 125, 156, 164, 219, 228, 264, and 413.

8. Other manufacturing or treating.

Class 261, subclasses 94+ and 100+ provide for apparatus under the class definition, including a porous mass* or porous sheet*, respectively, for providing intimate contact between a gas and a liquid.

9. Miscellaneous devices.

Class 16, subclasses 221+ provide for hinges of indefinite length.

Class 33, subclasses 12+ provide for stock-material* fabrics* with pattern lines (guide or gauge lines) thereon, and subclass 567 for a plural layer product disclosed solely for use as a gauge block.

Class 36 provides for an article* which is specifically shaped or contoured to be part of a boot, shoe, or legging, e.g., heel, innersole, vamp, etc.

Class 102 provides for an article* which is an explosive or ammunition device.

Class 116, subclass 22 provides for an article* which is an animal frightening device.

Class 165, subclass 185 provides for an article* which is a heat transmitter.

Class 267 provides for an article* which is a spring device.

Class 269 provides for an article* which is a work holder.

Class 280, subclasses 11.18 and 28 provide for an article* which is a runner or runner base for a land vehicle.

Class 288, subclasses 51-55 provide for articles* which are soldering irons.

Class 374, subclasses 529+ provide for articles* modified over and above the material or composition thereof, to produce motion as the result of changes in the thermal condition of the devices or structures, and subclasses 205+ provide for articles* combined with additional structure to form

an arrangement which provides an indication produced from motion resulting from changes in the thermal condition of the articles*.

Class 376 provides for an article* which is a nuclear element and for stock-material* of such element having a unique adaptation for such use. For example, a jacketed material having passages for the escape of fission products is a unique adaptation, but a merely sheathed material is not.

Class 446, Amusement Devices: Toys, subclasses 217+ for spinning type toys which are similar in construction to special occasion ornaments for Class 428, subclasses 7+.

Classs 473, Amusement Devices: Games, subclasses 316+ for an article* which is a golf club shaft.

ART TERM INDEX TO THE CLASS

The following Search This Class, Subclass references are provided for convenience in locating the principal subclasses containing patents related to certain terms generally employed in the art.

D. CLATHRATES AND INTERCALATES

Clathrates and intercalates (inclusion compounds), per se, are classified hierarchically and subject to the limitations set forth in the compound (element) classes based both on the encapsulant and encapsulate. For example, a clathrate of urea and hydrogen peroxide is classified in Class 564, subclass 32, urea and an organic compound in Class 564, subclass 1.5, dextran and iodine in Class 536, subclass 112, etc. Where a patent does not state that a material is either a clathrate or an intercalate, the assumption is made that the material is either a coated or encapsulated product classified in Class 428, subclasses 402+.

SECTION III - SUBCLASS REFERENCES TO THE CURRENT CLASS

For art terms relating to nonstructural laminates - see section II, Glossary of Terms, Part B.

SEE OR SEARCH THIS CLASS, SUBCLASS:

15, for artificial grass, sod, or turf
121+, for binding
542, and 577+ for a blank
23, for a bouquet
85+, for carpet (pile)
77+, 195+, and 919 for camouflage
175+, 193+, and 196+ for cloth
163, 167+, 182+, and 603+ for corrugated
40+, 77+, 411+, and 914+ for decalcomania
596+, for expanded metal
588+, for a fagot
85+, for fleece
163, 167+, and 599+ for fluted
158+, 304+, and 613+ for foam
585, 587, and 599 for ingot
38+, 67, and 614+ for inlay
???, for knitted
38, 44+, 53, 54+, 57+, and 67 for mosaic
62, and 91+ for nap
85, and 588+ for pile
123, for piping
75+, and 181 for pleated
143+, for roofing
438+, for safety glass
192+, for scalloped
38, for stained glass
605, for steel wool
28, and 115 for tassel
34, for Thermopane
???, for wire glass
175+, and 196 for woven

SECTION IV - GLOSSARY

A. Structural

Glossary terms below are characterized as either A. Structural or B. Nonstructural or Composition. The terms are identified as such.

Terms or phrases used in titles and definitions either repeatedly or in a special and limited sense are set forth below with the meaning each is to have in this class. For economy of space, an asterisk (*) following a word indicates that reference should be had to this glossary for the specific meaning thereof while an asterisk following an hyphenated phrase, (e.g., strand-portion*, etc.) indicates that the entire hyphenated term, as such, has been defined in this glossary.

Note. Where appropriate throughout the definition, the alternatively singular or plural forms of a noun have been indicated by the addition of (s) immediately following the noun, (e.g., layer(s) to mean a layer or layers, etc.).

ADDITION POLYMER FROM UNSATURATED MONOMERS

Any multiunit chain which is the product of the reaction of unsaturated bonds in the units. The product may be the result of interaction of molecules of the same compound (as polyethylene) or of different compounds (as acryronitrile-styrene). Vinyl acetate and methyl methacrylate are included within the scope of the term because the monomeric units are linked through the reacted unsaturated bonds and the ester groups are pendant - i.e., the units are not linked through the ester groups. (Nonstructural or Composition)

ALDEHYDE OR KETONE CONDENSATION PRODUCT

A resin resulting from the reaction of an aldehyde or a ketone and a polyfunctional active hydrogen containing compound, which, with the elimination of water, produces a chain of alkylidene units alternating with the residue of the hydrogen supplying compound. Phenol formaldehyde, urea formaldehyde and polyamino (e.g., melamine) aldehyde or furfural resins are within the scope of the term. (Nonstructural or Composition)

ANIMAL MEMBRANE

Material derived from an animal and found there originally in film or layer form, e.g., bladder,skin or scale. Glue or gelatin in a film form is not included here because neither exists in the animal as a layer or foil. (Nonstructural or Composition)

ANTIFERROMAGNETISM

Antiferromagnetism occurs when the exchange interaction between neighboring atoms cancel each other, so the net magnetic moment is zero. Examples of antiferromagnetic materials are (Pt, Ir, Cr , and Pd) Mn alloys, and select transition metal oxides.

ASBESTOS

A native magnesium calcium silicate. Asbestos is not considered to be included in the term “metal compound” for purposes of this class, but is included in silicon containing, unless specifically stated otherwise in a title or definition. (Nonstructural or Composition)

ARTICLE

A discrete determinate three dimensional thing substantially in its ultimate use form, as distinguished from stock material (e.g., sheet, etc.) from which such articles may be manufactured. These articles are limited to subclasses 2 through 34.1, part of subclass 542 and subclass 576. (Structural)

BASE

That substance or material which has been covered or saturated or permeated, either partially or completely by another material. This term is synonymous with Substrate. (Structural)

BITUMINOUS OR TARRY RESIDUE

A composition or compound having the characteristics of a tar or pitch no matter what the origin. This term includes all asphalts, bitumens, pitches and tars from coal, mineral oil, cotton seed pitch and the residue from the destructive distillation of wood, and natural oil distillations. Carbohydrate 1) polyhydroxy mono-aldehydes and polyhydroxy mono-ketones, generally having the formula $C_n(H_2O)m$ and substances which are hydrolized to these. The term includes cellulose, starch dextran, dextrin, sugar, and lignin. (Nonstructural or Composition)

(1) Note. Wheat paste, which contains gluten, is considered polyamide.

BLANK

See definition of intermediate-article*. (Structural)

BLOCK

A relatively large piece of material whose thickness is many times that of a web* or sheet* compared with its width. (Structural)

CARBON

Inorganic material. (Nonstructural or Composition)

CELLULOSIC

A carbohydrate material derived from the structural matter of plant life, usually from the stems. The term includes lignocellulose (e.g., wood and bark) relatively pure cellulose (e.g., cotton and linen) and chemically modified forms of cellulose as cellophane, pyroxylin, viscose and rayon. While pyroxylin may be plasticized with minor amounts of camphor and/or castor oil, for

purposes of classification, pyroxylin is considered cellulosic. (Nonstructural or Composition)

CERAMIC

Clay containing, therefore silicon containing. (Nonstructural or Composition)

CORK

The outer bark of cork oak. The cork may be in the form of slabs or may be used as a filler in finely divided form. (Nonstructural or Composition)

CAVITY

A hole or a hollow place in a body. (Structural)

CELL

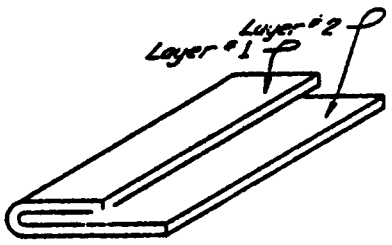
A closed cavity (which may be empty or full) in a component*. (Structural)

CLOTH

A fabric* which for purposes of this class is considered to be made of mechanically intertwined, interlooped, interwoven, or intertangled strands*, strand-portions* or strand like strips*. See Class 442, class definition. (Structural)

COMPONENT

A distinct unitary element of a composite stock material* which is longitudinally coextensive therewith and which, if separated from the remainder of such stock material*, would be recognized as a web*, sheet*, rod*, strand*, tube or block by itself. A component may consist of plural layers* as in the folded component shown in Figure 1. See also (2) Note under A, above. (Structural)



COMPOSITE

A stock-material* comprising a plurality of components*. (Structural)

COMPOSITION

A product having a plurality of constituents* or elements, none of which are in a defined spatial or ordered relationship to each other or to the surface or shape of the body in which they are contained, that is, a random mixture of elements. (Structural)

CONSTITUENT

A discrete element* (e.g., strand*, fiber*, particle*, etc.) of a component* or product.

CORE

intermediate portion of a composite* product. In a composite web* or sheet*, a core lies between two other components*; in a rod* or strand* or filament*, a core is the inner portion covered with another layer. If a core is claimed, per se, it is to be assumed for purposes of this class that the other layer(s)* or component(s)* are included. (Structural)

ELEMENT

See definition of constituent*. (Structural)

ESTER

A compound which is identical to that obtained by the replacing of a hydroxy hydrogen of an alcohol or a phenol with an acid radical. (Nonstructural or Composition)

ESTER LINKAGE

The chemical grouping obtained by replacing the hydroxy hydrogen of an alcohol or a phenol with an acid radical. (Nonstructural or Composition)

FABRIC

A web*, sheet* or film disclosed as used in the manufacture of household furnishings (e.g., draperies, upholstery, etc) shoes, etc., roofing, clothing, tires, etc. and is claimed as a textile*, cloth* or fabric. See Class 442, class definition. (Structural)

FERRIMAGNETISM

Ferrimagnetic materials exhibit exchange interaction

between neighboring atoms leading to adjacent moments; however, the magnetic moments are unequal and opposite in direction. The magnetic properties of ferrimagnetic materials are strongly temperature dependent and are characterized by their Curie temperature. Examples of ferrimagnetic materials are rare earth-transition metal amorphous alloys, such as GdFeCo, TbFeCo, and select granular transition-metal alloys.

FERROMAGNETISM

Ferromagnetic materials exhibit exchange interaction between neighboring atoms leading to adjacent moments. Ferromagnetism is temperature dependent and field strength dependent. Typical ferromagnetic materials include transition metals such as Fe, Ni, and Co and their alloys.

FIBER

A relatively short, slender, flexible element of macroscopic size and finite length and having a width and thickness of the same order of magnitude. A fiber is generally of staple length to facilitate its being spun, twisted or otherwise secured together into a composite strand but may be of shorter length requiring bonding, felting or matting to form a strand or layer. It may be of animal (e.g., wool, rabbit hair), vegetable (e.g., cotton, jute, hemp), or mineral (e.g., asbestos, glass, metal) origin and may be either natural, modified or synthetic. See also Filament. (Structural)

FILAMENT

A fine threadlike body or structure whose width and thickness are of the same order of magnitude. See also fiber. (Structural)

FLAKE

A small thin mass having a width or length greater than its thickness. The term flake is considered to denote structure and is classified accordingly. (Structural)

GLASS

An amorphous, hard, brittle, often transparent material comprising a fused mixture of the silicates of the alkali and alkaline earth, or heavy metals. Glass is not considered to be included in the term "metal compound" for purposes of this class, unless specifically included in a title or definition. (Nonstructural or Composition)

GRAPHITE

Inorganic material as is carbon. (Nonstructural or Composition)

GUM

See natural oil, gum, rosin or lac below. (Nonstructural or Composition)

INTERMEDIATE-ARTICLE

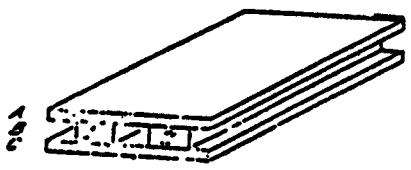
A fully shaped article, all three dimensions of which are definite, even though one or more of these dimensions may be negligible. The article is not suitable for functional use in the claimed condition, but must be subjected to one or more further significant shaping steps to do more than merely occupy space. The following operations have been regarded as not involving a further significant shaping: (a) Assembling or uniting the article with other parts. (b) Distorting the article during an assembly operation to cause the article to conform to discrepancies in the size or shape of a coacting part. (c) Bonding or distorting those portions of the article which are to function as means for fastening the article to a coacting part, as, for example, the bending of ears or tabs. (Structural)

LAC

See natural oil, gum, rosin or lac below. (Nonstructural or Composition)

LAYER

A single thickness of material(s) in the form of web* or sheet*, or a plurality of any of these in side-by-side coplanar relation; or particulate material arranged in continuity to constitute a distinct stratum. A layer may include a plurality of components* as in Figure 2. See also (2) Note under A, above. (Structural)



MAGNETIC

A material exhibiting the inherent property of magnetism, which is dependent on the electronic configuration

of the atom, crystalline and molecular structure, and coupling between electrons arising from the orbital and spin magnetic moments of the nucleus and electrons. A material is considered magnetic for the purposes of this class if it exhibits a nonzero magnetic moment, such as in paramagnetism, ferromagnetism, and ferrimagnetism.

MASS

A body of material of indefinite or indeterminate shape. (Structural)

METAL

A material having a continuous phase of any element of the periodic table except hydrogen, a noble gas, a halogen, a chalcogen (oxygen, sulfur, selenium, tellurium), nitrogen, phosphorus, carbon and boron. Elemental silicon is considered to be a metal, but a silicon compound is not considered to be a metal compound on the basis of silicon content. The term "metal compound" in a subclass title does not include glass or asbestos, unless specifically included by title or definition. The metal may be a pure metal or an alloy as defined in Class 75, Specialized Metallurgical Processes, Compositions for Use Therein, Consolidated Metal Powder Compositions, and Loose Metal Particulate Mixtures, subclass 122, (1) Note. An intermetallic compound of two or more metals, e.g., a metal silicide, aluminide, etc., is considered to be an alloy. (Nonstructural or Composition)

METALLIC

Composed entirely of metal* or having adjacent metal components. Since autogenous bonding of two metallic parts is thought to involve inherently either a diffusion or alloying between constituents of the two parts, this diffusion or alloy layer, even though of appreciable thickness, does not prevent the undiffused or unalloyed regions from being considered. (Structural)

NATURAL OIL OR GUM, ROSIN OR LAC

Any oil, gum or resin that occurs in nature, as cottonseed, linseed and castor oils, rosin, mineral oil and the exudation of insects known as lac. These three classes of oil; drying, semidrying and nondrying oil are included within the scope of the term. (Nonstructural or Composition)

NATURAL RUBBER

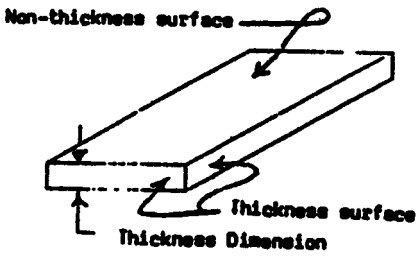
Containing the natural gum, know as caoutchouc, gutta percha, or balata obtained from the latex or sap of "rubber" trees. The word "rubber" standing alone is considered to denote natural rubber. (Nonstructural or Composition)

NOBLE METALS

Those metals not readily oxidized, i.e., silver, gold, platinum, polladium, mercury, iridium, rhodium, ruthenium, osmium. (Nonstructural or Composition)

NONTHICKNESS SURFACE

The surface of a web, sheet, layer or component on which both its length and width may be measured. See Figure 3. (Structural)



OIL

See natural oil, gum, rosin or lac, above. (Nonstructural or Composition)

PAPER

Unless otherwise specified, is a sheet or web of waterlaid felted cellulosic fibers. May also be made of asbestos, mineral or synthetic fibers or blends of fibers, but must be so disclosed solely, or must be so claimed for placement in a subclass other than cellulosic or paper. (Nonstructural or Composition)

PARAMAGNETISM

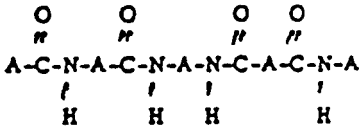
Paramagnetic materials have magnetic moments not completely canceled because of electronic configuration and exhibit a resultant moment. Paramagnetic susceptibility is strongly temperature dependent. Examples of paramagnetic materials are CoCr alloys at specific Cr concentrations and materials exhibiting specific size ranges of either the magnetic grains or particle dimensions.

PARTICLE

A very small quantity of matter, so small as to be considered without magnitude although possessing inertia and the force of attraction. (Structural)

POLYAMIDE

A polymeric compound containing amide groups through which the monomers are linearly linked, except urea-aldehyde (for which see alddhyde or ketone condensation product). The term includes 1, the reaction products of polyamines and polybasic acids or 2, the polymer of amino acids (e.g., nylon, peptides and proteins). The manner in which the amide groups linearly link the monomers or moieties, of which the chain is built is graphically indicated by the below: (Nonstructural or Composition)



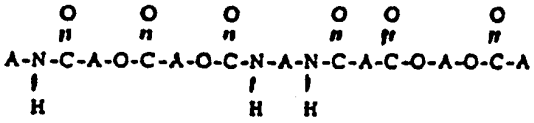
(1) Note. Wheat paste, which contains gluten, is considered to be a polyamide.

(2) Note. Polyamide also includes polyimide.

(3) Note. Urea-aldehyde condensation product is not included within the definition of polyamide since the product is significantly different from other polyamide resins and are similar to phenol-aldehyde resins. Hence, urea-aldehyde products are placed in the subclass providing for aldehyde-ketone condensation products.

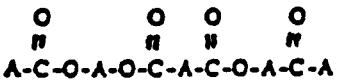
POLY(AMIDO-ESTER)

A compound which is a polymer of linearly recurring amide and ester linkages. The monomers do not have to have an equivalent number of amide and ester groups and they do not have to occur in a regular pattern. The products of (1) a) polybasic acids b) polyhydric alcohols and c) polyamines or, (2) a mixture of hydroxy acids and amino acids or (3) polybasic acids and hydroxy amines are within the scope of the term. (Polyurethane is exemplary): The manner in which the ester and amide groups linearly link the monomers or moieties, of which the chain is built, is graphically indicated by the below structure. The ester groups need not be carboxylic esters but may be, e.g., sulfate ester groups. (Nonstructural or Composition)



POLYESTER

A polymeric compound containing ester groups through which the monomers are linearly linked to each other. The manner in which the ester groups linearly link the monomers or moieties, of which the chain is built, is s:graphically indicated by the below structure. The ester groups need not be carboxylic esters but may also be, e.g., sulfate ester groups. (Nonstructural or Composition)



POLYIMICAL

Included within the term polyamide. (Nonstructural or Composition)

PORE

A tiny opening, usually microscopic, through which certain fluids may pass. Generally, the pore opening is of such irregular direction that light will not pass through it. (Structural)

POWDER

A mass of particles, that is, portions of matter so small that they are not ordinarily handled as individual units. According to Metals Handbook, 8th Edition, 1961, volume 1, page 28, powders currently used in powder metallurgy had a particle size within the range of 0.1 to 1000 microns in their largest dimension, as determined by screens or other suitable instruments. Powder particles generally are distinguished from filamentary particles in that their shape and length-to-diameter ratio are such that in the dry state the particles will not hold together as a massive article without the application of pressure or heat. (Structural)

QUARTZ

A fused silicon dioxide (silica). (Nonstructural or Composition)

REFRACTORY

Various materials, but usually clays or other cementitious or silicon containing. Consider to be silicon unless clearly disclosed otherwise, as for example alumina. The refractory metals are those in Groups IVB, VB and VIB of the Periodic System. (Nonstructural or Composition)

ROSIN

See natural oil, gum, rosin or lac. (Nonstructural or Composition)

ROD

A relatively rigid and slender element having a width and thickness of the same order of magnitude, a length which may be either indeterminate or finite, and a cross-section which may be of any shape. (Structural)

SHEET

A portion of web* material of finite length, whose width is greater than its thickness, and which may be of any perimetric shape (e.g., triangle, circle, etc.). (Structural)

STOCK-MATERIAL

A sheet*, web*, rod*, strand*, tube or block, mass or layer. (Structural)

STRAND

A relatively slender and flexible element* having a width and thickness of the same order of magnitude and a length which is either (a) indeterminate or (b) coextensive with the length or width of a sheet* or layer* with which it may be associated. A strand may be a monofilament or it may include either a plurality of filaments* or fibers* disposed in parallelism (e.g., tow) or constituent fibers* and/or filaments* knitted, plaited, braided, twisted, interlaced, interlocked or otherwise secured together to form a unit such as roving, thread, yarn, cord, rope or cable. (Structural)

STRAND-PORTION

A strand* of finite length; or an unsevered but determinate length of a strand. (Structural)

STRIP

A web* or sheet* or relatively narrow ribbon-like material. A strip which is interwoven or intertangled with other strips or with strands, in the same manner as a strand, will be termed a “strand-like strip”. (Structural)

SUBSTRATE

See Base*. (Structural)

TEXTILE

A fabric* which, for purposes of the class is considered to be cloth*. See Class 442, class definition. (Structural)

WAX OR WAXY

A compound described as a wax (e.g., beeswax) or having the physical characteristics of a wax or is a recognized wax (as carnauba). (Nonstructural or Composition)

WEB

A portion of material having length and width each greater than its thickness and with at least its longitudinal dimension indeterminate. A web may comprise (a) a single thickness of material or (b) a plurality of portions of a single piece of material folded on each other longitudinally or transversely, or (c) a plurality of individual web components* joined together in longitudinally coextensive face or edge contact to form a composite web. (Structural)

(1) Note. Unless clearly disclosed or claimed otherwise (e.g., as a rod*, mass*, filament*, etc.) a product will be placed in the appropriate web* or sheet* subclass.

(2) Note. Included under the definition of component* or layer are the following: (a) The skin formed on a porous layer* by curing (e.g., a foam, etc.). (b) The “layer*” formed by impregnating a substrate to a defined depth which must be recited either relatively to the entire thickness or as an absolute dimension. (c) Either of a pair of layers* of the same material cohered or

adhered together by their own forces, if disclosed as plural separate layers*.

(3) Note. For purposes of this class, paper* is limited to a waterlaid web* of interfelted cellulose* (natural) fibers*. A waterlaid web* of resin, polymer or modified cellulose* (e.g., cellulose acetate) fibers is excluded from the paper* subclasses and will be classified on other features (e.g., composition, etc.).

(4) Note. Where a subclass title includes a "coating" or "coat" or "coated layer*", a bonded or adhered component or layer* is intended to be included within the scope thereof. Thus, a product formed by laminating or adhering two separate and distinct layers* is considered to be the equivalent of a product made by applying a coating of a material onto a base* or substrate*.

WOOD

The material of trunks and branches of trees or bushes, excluding bark. This term includes lumber and finely divided wood chips, fibers or flour. "Fiber board" from wood fibers or pulp will be considered wood or paper depending on the disclosure of the document in which this expression occurs. Fiber board formed by compression of wood fibers with or without a binder (and utilized as wood) is considered wood. Fiber board which is water laid (and, used as cardboard or paste board) is considered paper. (Nonstructural or Composition).

WORKPIECE

A stock-material* not suitable for functional use in the claimed condition, but requiring one or more further significant shaping steps to do more than occupy space. Usually it is the cross-sectional configuration which is to be further shaped. See the definition of intermediate-article* for a list of operations not considered to be significant shaping.

SUBCLASSES

1.1 Liquid crystal optical display having layer of specified composition:
This subclass is indented under the class definition. Product which specify composition of at least one layer in a liquid crystal optical display.

SEE OR SEARCH CLASS:

40, Card, Picture, or Sign Exhibiting, subclass 448 for display devices using liquid crystals.

250, Radiant Energy, subclass 331 for nonchemical infrared imaging including liquid crystal detector.

252, Compositions, subclass 299.01 for liquid crystal compositions containing a meso-morphologic state of matter.

345, Computer Graphics Processing and Selective Visual Display Systems, subclasses 38, 50 - 54, and 87 - 104, for selective electrical control of liquid crystal display devices.

349, Liquid Crystal Cells, Elements and Systems, subclasses 1 - 18, and 182 - 186, respectively for structures of liquid crystal devices.

360, Dynamic Magnetic Information Storage or Retrieval, for liquid crystal used to store or retrieve dynamic information stored magnetically.

365, Static Information Storage and Retrieval, subclass 108 for liquid crystal used to store or retrieve static information.

368, Horology: Time Measuring Systems or Devices, subclasses 30, 84, and 242 for timepieces using liquid crystal compositions.

430, Radiation Imagery Chemistry: Process, Composition, or Product Thereof, appropriate subclasses for radiation imagery chemistry involving a process, product, or composition using a liquid crystal.

436, Chemistry: Analytical and Immunological Testing, for analytical and analytical control processes employing liquid crystals.

552, Organic Compounds, particularly subclasses 502 through 652, for organic compounds having liquid crystal properties.

1.2 Alignment layer of specified composition:
This subclass is indented under subclass 1.1. Subject matter wherein a chemical composition has been stipulated for a layer that acts to selectively orient liquid crystal molecules.

1.21 Alignment layer is Inorganic:
This subclass is indented under subclass 1.2. Subject matter wherein the alignment layer is of an inorganic chemical composition (e.g., glass, metal oxide, etc.).

1.23 Silicon compound (i.e., organosilicon):
This subclass is indented under subclass 1.5. Subject matter wherein the layer is identified as including a compound of Silicon (Si).

SEE OR SEARCH THIS CLASS, SUBCLASS:
- 1.32, for viewing layer composed of silicon compound.
- 1.51, for inorganic compounds of silicon bonding or intermediate layer for liquid crystal optical displays.
- 391, 405, 428, 429, and 446 - 454, for other products in which silane, silicone or siloxane is a coating or a material permeating or saturating a base.

1.25 Polyamide:
This subclass is indented under subclass 1.2. Subject matter wherein the alignment layer is an organic polymer, or derivative, with structural units linked by amide grouping.

1.26 Polyimide:
This subclass is indented under subclass 1.2. Subject matter wherein the alignment layer is an organic polymer, or derivative, with structural units linked by imide grouping.

1.27 Polyimidflouride:
This subclass is indented under subclass 1.26. Subject matter wherein the polyimide compound in the alignment layer contains fluorine.

1.28 Polyimidmetalo:
This subclass is indented under subclass 1.26. Subject matter the polyimide compound in the alignment layer contains metal.

1.3 With viewing layer of specified composition:
This subclass is indented under subclass 1.1. Subject matter further including a chemical identified layer for looking through.

1.31 Polarizer or dye containing viewing layer:
This subclass is indented under subclass 1.3. Subject matter wherein the viewing layer includes a chemically identified material polarizer, a material causing light ray or other radiation to vibrate in a pre-defined pattern, or a dye, a material imparting color or to.

1.32 Silicon compound (e.g., glass, organosilicon, etc.):
This subclass is indented under subclass 1.3. Subject matter wherein the viewing layer includes a compound of Silicon (Si).

1.33 Ester (e.g., polycarbonate, polyacrylate, etc.):
This subclass is indented under subclass 1.3. Subject matter wherein the outer viewing layer includes an ester, i.e., reaction product of an alcohol and an organic acid.

1.4 With charge transferring layer of specified composition:
This subclass is indented under subclass 1.1. Subject matter further including a chemical identified layer for carrying electrical charge.

1.5 With bonding or intermediate layer of specified composition (e.g., sealant, spacer, etc.):
This subclass is indented under subclass 1.1. Subject matter wherein a chemically identified material forms a layer or film functioning to join layers together or add an intermediate layer to the display.

1.51 Inorganic layer:
This subclass is indented under subclass 1.5. Subject matter wherein the film or layer is inorganic.

1.52 Silicon compound (i.e., organosilicon):
This subclass is indented under subclass 1.5. Subject matter wherein the layer is identified as including a compound of Silicon (Si).

SEE OR SEARCH THIS CLASS, SUBCLASS:
- 1.51, for inorganic compounds of silicon bonding or intermediate layer for liquid crystal optical displays.
- 1.32, for viewing layer composed of silicon compound.

391, 405, 428, 429, and 446 - 454, for other products in which silane, silicone or siloxane is a coating or a material permeating or saturating a base.

1.53 Epoxy:
This subclass is indented under subclass 1. Subject matter wherein the layer contains an epoxy (e.g., epoxy resin, etc.).

1.54 Ester:
This subclass is indented under subclass 1.5. Subject matter wherein the film or layer is identified as including an ester, i.e., reaction product of an alcohol and an organic acid.

1.55 Unsaturated aliphatic polymer (e.g., vinyl, etc.):
This subclass is indented under subclass 1.5. Subject matter wherein the film or layer is identified as including an open chain organic compound, e.g., containing at least one double or triple bond.

1.6 With substrate layer of specified composition:
This subclass is indented under subclass 1.1. Subject matter wherein an underlying support or base of the display is chemically identified.

1.61 Releasable layer to expose adhesive:
This subclass is indented under subclass 1.6. Subject matter wherein substrate has a layer or component that is removable to reveal an adhesive.

SEE OR SEARCH THIS CLASS, SUBCLASS:
40.1, through 42.3, for a product in which a release layer is removed to expose another layer or component having an adhesive thereon.
352, which contains an additional layer or component that does not permanently adhere to a surface with which it may come into contact.

1.62 Inorganic substrate layer (e.g., ceramic, metallic, glass, etc.):
This subclass is indented under subclass 1.6. Subject matter wherein the alignment layer is chemically identified as being inorganic, e.g., glass, metal oxide.

2 This subclass is indented under the class definition. Product comprising the material usually discarded from a residence (e.g., table scraps, empty food packages, etc.) or from a business establishment (e.g., rags, paper, etc.) and which has been densified into a mass and handled as a unitary element.

SEE OR SEARCH CLASS:
44, Fuel and Related Compositions, subclass 541 for a fuel product which is bundled, wrapped or covered and subclasses 589+ for a fuel briquette containing vegetation or refuse.
53, Package Making, appropriate subclasses, for the method of making a package, which may identify the contents as trash or refuse.
206, Special Receptacle or Package, appropriate subclasses, especially subclass 83.5 for bales or bundles of material other than trash or refuse.
588, Hazardous or Toxic Waste Destruction or Containment, subclasses 249 through 260 for permanent containment of hazardous or toxic waste.

3 This subclass is indented under the class definition. Article* which is symbolic in a system of theism.

SEE OR SEARCH CLASS:
2, Apparel, appropriate subclasses; for an article of religious attire; especially clothing.
40, Card, Picture, or Sign Exhibiting, subclass 124.5, for an exhibiting device to be used on a memorial tablet.
52, Static Structures (e.g., Buildings), subclasses 103+ for an earth supported type monument, and 316 for an ornamental surface of a building type structure formed by relief or intaglio deformation of a surface.
63, Jewelry, appropriate subclasses, for a religious artifact which is also a distinct article of jewelry.
206, Special Receptacle or Package, subclass 19, for a receptacle specifically arranged for sacerdotal use.

312, Supports: Cabinet Structure, subclass 33, for cabinet structure designed solely for use in worship.

434, Education and Demonstration, subclasses 245+ for an educational device or method which may involve religious symbolism.

4 This subclass is indented under the class definition. Article* which comprises (1) ribbon or strand material doubled on itself about a transverse line of bend and knotted, or otherwise fastened to maintain the resultant looped structure; or (2) feather or filamentary material formed loosely into a tuft or ball; or (3) material gathered, pleated or looped about a central point or axis suggestive of the petals of a flower seen in plan view but lacking sufficient floral fidelity or similarity to constitute a simulated or artificial flower; or (4) plural strands, or portion of a single strand, knotted together.

(1) Note. A patent to a bow, pom-pom rosette or knot combined with another article (i.e., as an embellishment thereon) is to be placed with patents to such other article.

SEE OR SEARCH THIS CLASS, SUBCLASS:

17+, for an artificial plant or portion thereof; particularly, subclasses 24+ for an artificial flower.

SEE OR SEARCH CLASS:

2, Apparel, subclasses 243+ and 300, for an apparel trimming or a garment supporter, respectively, comprising or including an ornamental bow.

28, Textiles: Manufacturing, subclass 147 for apparatus for binding thread or yarn in a bundle to form a tassel and/or tuft.

112, Sewing, subclasses 400+ for a stitched apparel trimming material not elsewhere provided for.

132, Toilet, subclass 47 for a bow-supporting hair fastener.

223, Apparel Apparatus, subclass 46 for a machine or process for making a bow or tassel trimming.

289, Knots and Knot Tying, appropriate subclasses, for a method or apparatus for tying a bow knot and subclass 1.2 for a knotted strand.

5 This subclass is indented under subclass 4. Article wherein the ribbon or strand material is doubled on itself.

6 This subclass is indented under the class definition. Article* comprising an embellished, treated or simulated feather or a group of feathers not elsewhere provided for.

(1) Note. This subclass includes patents directed to (a) a reconstructed feather, i.e., a composite of feather element portions arranged to produce a desired configuration, (b) a simulated feather comprising artificial fibers or natural feather flues each extending laterally from a quill part; or (c) a cut of fur pelting in simulation of a feather or a group of feathers in the shape of a panache.

SEE OR SEARCH THIS CLASS, SUBCLASS:

22, for a feather utilized in the construction of a product imitative of natural vegetation.

SEE OR SEARCH CLASS:

34, Drying and Gas or Vapor Contact With Solids, subclasses 280+ for treatment of a feather, broadly; and see the search notes thereunder.

112, Sewing, subclass 404, for a feather sewn to a web or sheet.

223, Apparel Apparatus, subclass 47 for a device or machine for working (preparing, curling, attaching, etc.) feathers for plumes, ornaments, apparel trim, etc., not elsewhere provided for.

7 This subclass is indented under the class definition. Article* which has as its intended function only the temporary embellishment or adornment of a place or thing in connection with a particular event (e.g., Halloween, birthday party, Christmas, etc.).

(1) Note. A patent directed to a disclosure of an obvious abstraction of a simulated or modified natural article (e.g., planar

paper cutout, etc.) may be found in this or an indented subclass.

(2) Note. The occasion may be festive or somber.

(3) Note. Wreaths are considered to be special occasion ornaments for indented subclass 10.

(4) Note. This subclass is the locus for artificial Christmas trees unless provided for in an indented subclass.

(5) Note. A patent directed to an occasion ornament in the form of a web* or sheet* (e.g., festoon, streamer, etc.) will be placed in the appropriate stocks material subclasses of this class (428).

SEE OR SEARCH CLASS:

40, Card, Picture, or Sign Exhibiting, appropriate subclasses, for related structure generally used in an advertising display; and see subclasses 446+ thereof, for a display ornament including a mobile element.

229, Envelopes, Wrappers, and Paperboard Boxes, subclasses 116.1+ for a paperboard box including a decoration or novelty feature.

446, Amusement Devices: Toys, appropriate subclasses for similarly constructed devices which are differentiated from ornaments by the intended interaction between the user and toy.

8 This subclass is indented under subclass 7. Ornament fabricated of plural parts which are completely separable as units without destruction thereof, for purposes of assembly and disassembly.

SEE OR SEARCH THIS CLASS, SUBCLASS:

20, for a knockdown type tree structure.

SEE OR SEARCH CLASS:

211, Supports: Racks, subclasses 189+ for a knockdown or collapsible support rack.

446, Amusement Devices: Toys, subclasses 85+ for a knockdown toy which is played with by assembling and disassembling its component parts.

9 This subclass is indented under subclass 7. Ornament which is either articulated, or foldable, or inflatable and deflatable, or telescopic, for purposes of structural compactness (as for storage) and wherein said parts when so disposed retain a structural unity.

(1) Note. Adjustability that achieves another display form only (e.g., a figurine, the arm of which may be exhibited in either an extended or crooked position) is not considered to include the characteristics of collapsibility.

SEE OR SEARCH THIS CLASS, SUBCLASS:

12, for some other miscellaneous collapsible article; and see the search notes thereunder.

10 This subclass is indented under subclass 7. Ornament comprising an annulus either simulating, or ornamented by ribbon or floral-like leaf material intertwined along the annular path.

SEE OR SEARCH THIS CLASS, SUBCLASS:

27, for frame work intended for a floral piece.

SEE OR SEARCH CLASS:

47, Plant Husbandry, subclass 41.01, for related structure including a moisture retaining core adapted to sustain the life-like characteristics of natural flora.

57, Textiles: Spinning, Twisting, and Twining, subclasses 200+, for a twisted or twined textile strand; especially subclass 203, for chenille type; see class definition, section VI, reference to Class 57.

139, Textiles: Weaving, subclasses 393+, for a woven chenille strand wherein the weft strands serve to form chenille.

11 **Ornament under subclass 7 which:**
(a) approximates a sphere or spheroid; or (b) is an inverted deep cup, typically having a recurving brim and simulating a bell; or (c) comprises radially disposed points (e.g., geometric starpolygon) or lines (e.g., asterisk) which constitute the conventionally accepted pattern suggestive of the luminous heavenly body- "star".

(1) Note. This subclass includes, for instance, the vari-shaped Christmas tree "ball".

SEE OR SEARCH CLASS:
29, Metal Working, subclass 899.1, for a process of forming a hollow metal sphere.
116, Signals and Indicators, subclasses 148+, for a bell, per se.
446, Amusement Devices: Toys, subclass 76 for an ornamental container convertible to use as a toy.
473, Games Using Tangible Projectile, subclasses 52+ for a ball adapted to be used in the game of billiards or pool, subclasses 125+ for a ball adapted to be used in the game of bowling, and subclasses 569+ for a game ball, per se.

12 This subclass is indented under the class definition. Article* comprising parts which are either articulated, or foldable, or inflatable and deflatable, or telescopic, for purposes of structural compactness (as for storage) and wherein said parts when so disposed retain a structural unity.

(1) Note. Adjustability that achieves another display form only is not considered to include the characteristic of collapsibility.

SEE OR SEARCH THIS CLASS, SUBCLASS:
9, for a collapsible special occasion ornament.

SEE OR SEARCH CLASS:
40, Card, Picture, or Sign Exhibiting, subclass 214, for a balloon with a sign thereon.
138, Pipes and Tubular Conduits, subclasses 118+, for a flexible tubular structure including a collapsible feature.
222, Dispensing, subclasses 92+, for a collapsible wall type container; and see the search notes thereunder.
446, Amusement Devices: Toys, subclasses 220+ for an inflatable toy, subclass 388 for an animate figure formed from folded sheet material, and subclasses 487+ for other toys which are or collapsible.

13 **Article* under the class definition in the form of an exhibit piece which is:**
(a) enclosed within a surrounding peripheral enclosure (separate or integral); or (b) encased, either loosely or embedded, in a self-sustaining, light transmissive enclosure: or (c) a three dimensional scenic representation including an article of commerce and/or a product of nature or a replica thereof.

SEE OR SEARCH THIS CLASS, SUBCLASS:
81+, for a product in the form of a sheet* including a modification or embellishment of the periphery thereof.

SEE OR SEARCH CLASS:
40, Card, Picture, or Sign Exhibiting, appropriate subclasses, for an advertising display; and subclasses 700+, for a picture mount where the picture is not an essential structural element of the combination.
47, Plant Husbandry, subclass 41.01, for a living flower in a transparent casing.
472, Amusement Devices, particularly subclasses 57+ for a diorama related to an illusionary stage setting.

14 This subclass is indented under subclass 13. Product comprising an exhibit piece which is enclosed peripherally by a distinct element.

15 **Article* under the class definition wherein the primary structure is:**
(a) a replica of an article of commerce or a product of nature; or (b) a product of nature which is modified but retains the general structure and appearance of such a product.

(1) Note. For placement herein, and indented subclasses, the disclosure of an article in the form of a reproduction does not require exactness of duplication; but a disclosure of a pictorial representation of a natural product, or a mere imitation of a material finish (e.g., grain, etc.), is excluded from this subclass.

SEE OR SEARCH THIS CLASS, SUBCLASS:

7+, for a simulated or modified natural product for a specific or special occasion, e.g., wreath, etc.

13, for a three dimensional object or a product of nature in a display casing.

85+, for a natural product having a pile type surface.

141+, for a web* or sheet* with a textured surface resembling a natural product (e.g., grained leather, etc.).

195+, for a web* or sheet* with a discontinuous or differential coating, impregnation or bond which may constitute a representation or imitation of a material finish.

409+, for a web* or sheet* with a surface feature not provided for in a subclass superior thereto.

SEE OR SEARCH CLASS:

40, Card, Picture, or Sign Exhibiting, subclass 126, for an advertising display dummy.

52, Static Structures (e.g., Buildings), subclass 311.1 for an ornamental product for that class involving defined coloring, thickness variation or dissimilar elements forming a pattern.

119, Animal Husbandry, subclasses 253+ for a three dimensional object or a product of nature used as aquarium ornamentation.

252, Compositions, subclass 1 for a composition for making artificial snow.

434, Education and Demonstration, appropriate subclasses, for a simulation used as an educational device.

16 This subclass is indented under subclass 15. Article in animal form.

SEE OR SEARCH CLASS:

446, Amusement Devices: Toys, subclasses 268+ for a figure toy.

17 This subclass is indented under subclass 15. Article comprising either simulated, or treated nonliving, natural plant form.

(1) Note. Artificial turf, sod or grass will be found in this subclass.

SEE OR SEARCH THIS CLASS, SUBCLASS:

13, for a plant in a transparent display housing.

85+, for a pile or nap type surface which is not an artificial or treated natural product.

SEE OR SEARCH CLASS:

24, Buckles, Buttons, Clasps, etc., subclass 5 and 6 for a plant with means to attach to an article of clothing.

47, Plant Husbandry, appropriate subclasses for a cut plant treated to prolong the characteristics of life, and especially subclasses 41.01+ for the combination of a receptacle and a cut plant either treated, or with means, to prolong the characteristics of life.

206, Special Receptacle or Package, subclass 423 for the combination of a receptacle or container and either a freshly cut plant or an artificial plant.

239, Fluid Sprinkling, Spraying, and Diffusing, appropriate subclasses, especially subclasses 34+ for an aromatized artificial flower.

427, Coating Processes, subclasses 458+ for treating plants or flowers for preservation or ornamentation by a coating step.

504, Plant Protecting and Regulating Compositions, subclasses 114+ for compositions for treating a cut plant to maintain its freshness or to prolong the characteristics of life.

18 This subclass is indented under subclass 17. Article wherein the product simulated or treated is at least part of the woody portion of a woody perennial plant, which plant is generally

distinguished by a substantially sized single or main trunk with attached branches and foliage.

(1) Note. A patent restricted to a bush or shrub type plant is not considered to be directed to a tree structure.

(2) Note. A patent to a simulated tree trunk or branch is included in this subclass, but not one to a tree leaf alone (for which see subclass 17).

(3) Note. An artificial or natural tree used for a special occasion (e.g., Christmas, etc.) is considered to be a special occasion ornament and will be found in the appropriate subclass above.

SEE OR SEARCH THIS CLASS, SUBCLASS:

7, for an artificial or natural tree disclosed as being for a special occasion, (e.g, Christmas, etc.).

19 This subclass is indented under subclass 18. Tree, either (a) in combination with a decorative article thereon or with an attachment whose function is to support another article (e.g., card or confectionery holder, etc.); or (b) embodying integral tree structure (such as a curved branch) specifically designed to function as an article supporting means.

SEE OR SEARCH THIS CLASS, SUBCLASS:

7+, for a special occasion ornament.

SEE OR SEARCH CLASS:

362, Illumination, subclasses 122+ for a tree with a decorative electric light thereon.

20 This subclass is indented under subclass 18. Tree fabricated of a plurality of parts which are structurally completely separable for purposes of assembly or disassembly.

SEE OR SEARCH THIS CLASS, SUBCLASS:

8, for a knockdown type special occasion ornament; and see the search notes thereunder.

21 This subclass is indented under subclass 17. Article including; (a) any simulation of a fruit, or (b) an extended ribbon-like structure having a leafy configuration along a longitudinal edge thereof and intended to embellish a food display.

SEE OR SEARCH CLASS:

40, Card, Picture, or Sign Exhibiting, subclass 126, for a simulation in the form of an imitation article (e.g., ice cream) intended for display purposes.

426, Food or Edible Material, Processes, Compositions, and Products, appropriate subclasses for an edible material intended for human or animal consumption.

22 This subclass is indented under subclass 17. Article constructed, at least in part, of a material which is a product of nature (animal, vegetable or mineral) and which at least broadly retains a form characteristic of such product.

23 This subclass is indented under subclass 17. Plant form either (a) in combination with means (e.g., base or suspension structure) to support same other than an integral framework around which the plant form is constructed; or (b) a plurality of such forms e.g., bunched, etc.).

SEE OR SEARCH THIS CLASS, SUBCLASS:

18+, for an artificial tree combined with a base-support.

SEE OR SEARCH CLASS:

24, Buckles, Buttons, Clasps, etc., subclasses 5 and 6, for a floral piece with clasp attachment.

47, Plant Husbandry, subclasses 41.01 and 55, for a cut flower holder and for a stem (usually of wire) for attachment to the short stem or calyx of a flower; and subclass 72, for a flower pot cover.

206, Special Receptacle or Package, subclass 423 for the combination of a receptacle and a floral decoration, whether growing, freshly cut or imitation.

211, Supports: Racks, appropriate subclasses, for an open framework type of a support rack.

248, Supports, subclass 27.8, for a floral support structure, per se; and subclasses 44+ for a staff type stand or base support.

24 This subclass is indented under subclass 17. Article comprising either the bloom or blossom, or a leaf of such bloom or blossom, of a plant of the type that originates from seed.

(1) Note. The bloom or blossom is that part of the seed plant which supports the reproductive spore in an envelope (corolla) that includes a calyx and petals.

SEE OR SEARCH THIS CLASS, SUBCLASS:

22, for a simulated flower constructed of a naturally occurring material.

25 **Flower under subclass 24 fabricated of:** (a) lacework or knotted mesh fabric*, or an open wire mesh whose continuity and integrity derive from the wire's permanent set; or (b) free running strand lengths.

(1) Note. Specifically excluded from this subclass, and included in subclass 26, is a patent to an artificial flower including filamentary material which is merely woven, knotted, or braided.

26 This subclass is indented under subclass 24. Flower fabricated from: (a) textile* fabric*, including ribbon; or (b) any of the paper* materials (e.g., crepe, Kraft, etc.); or (c) from any of the moldable, high molecular weight compounds whether manufactured by synthesis or chemical modication of naturally occurring high polymers (e.g., cellulose* acetate, polyvinyl* chloride, phenolformaldehyde resins, rubbers and urethane* foams, etc.).

(1) Note. For a definition of paper, see the definition of Class 162.

27 This subclass is indented under subclass 17. Means restricted to the requisite structural skeleton integral with and around which a composite* floral-piece, or element* thereof, is or may be constructed.

SEE OR SEARCH CLASS:

47, Plant Husbandry, subclass 41.01, for related structure including a moisture retaining core; and subclass 55, for a flower support designed to appear as the stalk thereof.

211, Supports: Racks, appropriate subclasses, for a frame-like support, in general.

248, Supports, subclass 27.8, for a support, per se, for a completed wreath, spray of flowers, etc. The framework onto which the natural or artificial vegetation is fixed, is proper subject matter for Class 428, subclass 27; however, such a framework combined with a hook for use in supporting the finished wreath, etc., or legs, which maintain the finished wreath off the ground is proper subject matter for Class 248, subclass 27.8.

28 This subclass is indented under the class definition. Article* which is, or includes, an element* of decoration utilized in structural design to denote a termination of the structure to which it is applied, and which decoration is disposed on an end or at an edge of such structure.

(1) Note. The final or pendent ornament may have a utilitarian function.

SEE OR SEARCH THIS CLASS, SUBCLASS:

7+, for a special occasion ornament.

19, for an ornament in combination with a tree.

115, for a fringed web* or sheet*.

SEE OR SEARCH CLASS:

16, Miscellaneous Hardware, subclasses 110.1 through 430 for a handle including a tasselled knob.

52, Static Structures (e.g., Buildings), subclass 57 for a roof attached finial.

135, Tent, Canopy, Umbrella, or Cane, subclasses 65+ for an ornamented cane or stick end.

29 **Article* under the class definition comprising:**
(1) a picture or design at least part of which is in an invisible or dimly visible state and is so constructed as to become, by intended use, preceptible, or more clearly so, upon appropriate treatment; or (2) material intended to present apparent visible changes in an incorporated design or image when: (a) subjected alternatively to reflected or transmitted light; or (b) viewed on a single face thereof, along different sight lines; or (c) viewed alternatively on each face, and the included image or design is either completely light pervious or substantially identical on each such face.

SEE OR SEARCH THIS CLASS, SUBCLASS:
199, for a product comprising a discontinuous coating which may be latent and developable to indicate attempts at erasure or alteration.

SEE OR SEARCH CLASS:
40, Card, Picture, or Sign Exhibiting, subclasses 106.51+ for a display including an illusion of motion; subclass 137, for a sign with a changeable reading; and other appropriate subclasses, for a latent image in a display device.
355, Photocopying, subclasses 78+ for contact printing.
430, Radiation Imagery Chemistry: Process, Composition, or Product Thereof, appropriate subclasses for radiation imagery compositions, a latent radiation image, and a process of developing an exposed image.
434, Education and Demonstration, subclasses 327+ for a latent image the development of which involves the educative process.
472, Amusement Devices, particularly subclasses 57+ for an amusement device producing either a physical or optical illusion.

30 This subclass is indented under subclass 29. Product including substantially parallel grooves or color bands, of minute width to effect a play of color.

SEE OR SEARCH CLASS:
359, Optical: Systems and Elements, subclasses 558+ and 615 for optical elements or systems for diffracting or dispersing light.
362, Illumination, subclasses 326+ and 341+ for related structure specifically for use with artificial light.

31 This subclass is indented under the class definition. An article* which is to be placed on a vehicle to provide a decoration or embellishment therefor.

(1) Note. So-called "trim" panels, usually used in upholstering and/or decorating the inside of vehicles, are not included under this definition of article. Such "trim" panels will be found below on other features, see for example, subclasses 156+ (embossed sheet material) or 355+ (sheet with cover or casing).

(2) Note. Included herein, for example, are automobile hood ornaments, streamers or other similar devices to be attached to a vehicle body for embellishment thereof.

SEE OR SEARCH THIS CLASS, SUBCLASS:
7+, for a special occasion ornament.

SEE OR SEARCH CLASS:
301, Land Vehicles: Wheels and Axles, subclass 37.101 for a wheel protector member (e.g., wheel cover, etc.).

32 This subclass is indented under the class definition. An article* comprising as a portion only thereof, (1) a strand*, strand-portion* or strip* wound or coiled around the article or (2) a plurality of strands* or strand-like materials mechanically interlooped, interlaced, or intertwined on the article*, each of (1) and (2) above serving to ornament or embellish the article*.

(1) Note. Examples of articles found in this subclass are; sword hilts or scabbards which are ornamented with the woven, braided or wound strands*.

(2) Note. Excluded from this definition is a filament, rod or other indeterminate length and non three dimensional element having a wound or wrapped coating.

SEE OR SEARCH THIS CLASS, SUBCLASS:

37, for a spirally flat wound strand or strip (e.g., braided rug, etc.).

222, for a web* or sheet* having components* which are twisted or folded about one another, or a component* which is arranged in a series of mutually parallel convolution along the longitudinal axis of the web* or sheet*.

377, for a rod*, strand* or filament*, or a coating therearound, helically wound or twisted about an axis extending longitudinally thereof, the axis, in the case of the coating, being that of the core*, filament*, rod* or strand*.

32.1 INK JET STOCK FOR PRINTING (I.E. STOCK BEFORE PRINTING):

This subclass is indented under the class definition. Subject matter for use as a receiver for ink jet printing and that includes a top ink receptive layer, a support for the top ink receptive layer, and sometimes includes a specialized layer on the back of the support for protecting the support or providing specialized characteristics (e.g., antistatic, etc.).

(1) Note. An ink receptive layer is defined as an involved layer or region of a layer that will absorb, fix, or permeate all or any component of the originally applied ink composition. Thus, a layer that fixes the pigment component of the applied ink or a layer that absorbs only the solvent component of the applied ink will be considered ink receptive for the subclasses hereinunder.

SEE OR SEARCH CLASS:

162, Paper Making and Fiber Liberation, subclass 100 for fibrous products of Class 162 processes not elsewhere provided. Class 162 processes relate to depositing fibers from a liquid suspension thereof to form an interfelted fibrous product (paper), and combinations of such fiber depositing steps with other treatments of the deposited fibrous product prior to the final drying thereof not elsewhere provided. Class 428 provides for coated fiber containing sheets that are coated after the wet water laid sheet has been dried at least to room equilibrium moisture level. Lacking an indication to the contrary, it will be assumed that a coated fiber containing sheet is proper for Class 428, if it is a non-structural laminate or has sufficient structure according to the Class 428 definition.

346, Recorders, for making a record of the movements of machines or instruments whose movements are desired to be recorded and at least temporarily preserved, making a record of any phenomenon capable of being detected either quantitatively or qualitatively and recorded for at least temporary preservation, the record making means and its immediate actuating means as a subcombination of either, and watchmen's and workmen's time-recorders and time stamps. See Class 346, subclass 134 record receivers and/or driving means therefore for the material on which the record of the machine movement in response to mechanical stimulus (e.g., vibration, rotation of machine, etc.) is made. Thus, if the machine operates as a result of computer direction as in an ink jet printer or thermal printer, the receiver is proper for Class 428.

347, Incremental Printing of Symbolic Information, for processes and apparatus for conveying information by selectively creating on a medium a visibly distinguishable symbol or mark composed of a plurality of portions. Particularly note Class 147 subclass 105 for subject matter including means specific to the medium and its processing wherein the receiving medium has a special characteristic such as fluid receiving layer.

32.11 Having property to receive other media in addition to ink jet composition:
This subclass is indented under subclass 32.1. Subject matter which is adapted to act as a receiver for other material in addition to ink from an ink jet printing.

32.12 Retransferable:
This subclass is indented under subclass 32.1. Subject matter wherein ink jet receiving layer is intended to act as a receiving layer for the ink which will be transferred to another substrate in a subsequent step.

32.13 Image viewable from either side (e.g., OHP, projectable image, etc.):
This subclass is indented under subclass 32.1. Subject matter wherein the ink image to be formed will be viewable from either side of a transparent support and capable of being projected by light onto a screen.

32.14 Single recording layer:
This subclass is indented under subclass 32.13. Subject matter wherein there is a single ink receptive layer on the transparent support.

32.15 Particles in recording layer:
This subclass is indented under subclass 32.14. Subject matter wherein the single ink receptive layer contains particles (e.g., pigment, etc.).

32.16 Cloth or textile support
This subclass is indented under subclass 32.1. Subject matter wherein a support is specified as being made of a cloth or textile.

32.17 Microporous synthetic resin support (e.g., microcracked, microembossed, etc.):
This subclass is indented under subclass 32.1. Subject matter wherein the support is a synthetic resin specified as having small open or interconnected randomly distributed microvoids.

32.18 Physical property (e.g., dimensions, optical, smoothness, etc.) of support specified:
This subclass is indented under subclass 32.1. Subject matter wherein a physical property (e.g., dimensions, optical, smoothness, etc.) of a support is given.

32.19 Optical property of support specified (e.g., opacity, brightness, etc.):
This subclass is indented under subclass 32.18. Subject matter wherein an optical characteristic (e.g., opacity, brightness, etc.) of the support is the specified physical property.

32.2 Smoothness or freeness specified:
This subclass is indented under subclass 32.18. Subject matter wherein a physical property of a paper support made from wood pulp is expressed as (a) the degree of uniform evenness and flatness of a paper surface or (b) as a rate at which water drains from a stock suspension through a wire mesh screen or a perforated plate.

32.21 Paper support composition specified:
This subclass is indented under subclass 32.1. Subject matter where the support contains a naturally occurring fibrous cellulosic material composition.

32.22 Specified property (e.g., antistatic, anticurl, adhesive, antifriction, etc.) of backing layer:
This subclass is indented under subclass 32.1. Subject matter wherein there is a layer having specialized characteristics (e.g., antistatic, anticurl, adhesive, antifriction, etc. located on the opposite side of the support from the ink receptive layer (i.e. not next to the ink receptive layer).

32.23 Terpolymer ink receptive layer:
This subclass is indented under subclass 32.1. Subject matter wherein the ink receptive layer contains a polymer derived from three distinct monomer units.

32.24 Plural ink receptive non-support layers:
This subclass is indented under subclass 32.1. Subject matter wherein there are more than one ink receptive layers.

32.25 Particle (e.g., pigment) containing layer:
This subclass is indented under subclass 32.24. Subject matter wherein at least one of the receptive layer contains particles (e.g., pigment, etc.).

32.26 Hardened, cured, or cross-linked ink receptive layer:
This subclass is indented under subclass 32.1. Subject matter wherein the ink receptive layer has reacted with a reactant that increases or interconnects polymer chains, or the ink receptive layer is referred to as hardened.

32.27 Gelatin ink receptive layer:
This subclass is indented under subclass 32.1. Subject matter wherein the ink receptive layer contains a proteinaceous (i.e., polypeptide) gel derived usually derived from a naturally occurring animal product (e.g., collagen, etc.) by boiling in water.

(1) Note. Lacking an indication to the contrary, the use of gelatin, per se, will be assumed to meet the definition of this subclass. However, it is possible to have a material identified as a gelatin that is not proteinaceous (e.g., starch, pectin, polyamide resin, etc.) and does not meet this subclass definition.

32.28 Modified polyvinyl alcohol ink receptive layer:
This subclass is indented under subclass 32.1. Subject matter wherein the ink receptive layer contains a derivatized polyvinylalcohol polymer.

32.29 Quaternary ammonium compound ink receptive layer:
This subclass is indented under subclass 32.1. Subject matter wherein the ink receptive layer contains a hydrocarbon compound that contains four hydrocarbon groups covalently bonded to nitrogen.

32.3 Dye-fixing agent present in ink receptive layer:
This subclass is indented under subclass 32.1. Subject matter in which the ink receptive layer contains a mordant which will combine with an applied dye-containing ink composition to form an insoluble color precipitate on the substrate, (e.g., dye plus metal chelating agent, etc.).

32.31 Physical property of ink receptive layer specified:
This subclass is indented under subclass 32.1. Subject matter in which a physical property of the ink receptive layer is specified.

(1) Note. For purpose of this subclass, the physical property of a particle, per se, is not considered a physical property of the ink receptive layer.

32.32 Pore size or pore volume:
This subclass is indented under subclass 32.31. Subject matter in which the physical property of the ink receptive layer is a void size (e.g., 60 to 150 A., etc.) or is void volume (e.g., cc, etc.).

32.33 Gloss specified:
This subclass is indented under subclass 32.31. Subject matter in which the physical property is expressed as the ability of the ink receptive layer to reflect light specularly from the surface thereof.

32.34 Particles (e.g., pigment, etc.) present in ink receptive layer:
This subclass is indented under subclass 32.1. Subject matter in which the ink receptive layer contains particles therein.

32.35 Particle size distribution:
This subclass is indented under subclass 32.34. Subject matter in which the particles present in the ink receptive layer are expressed as a range of particle sizes included in the ink receptive layer.

32.36 Surface of particle is modified (e.g., coated, charged, etc.):
This subclass is indented under subclass 32.34. Subject matter in which a surface on the particle present in the ink receptive layer is distinguishably characterized (e.g., coated, charged, etc.).

32.37 Property of particle specified (e.g., oil absorbitivity, surface area, pore size, etc.):
This subclass is indented under subclass 32.34. Subject matter in which a physical property of the particles (e.g., oil absobitivity, surface area, pore size, etc.) present in the ink receptive layer is given

32.38 Multiple polymers in ink receptive layer:
This subclass is indented under subclass 32.1. Subject matter in which the ink receptive layer comprises plural distinct polymers.

32.39 RECEIVER FOR THERMAL TRANSFER INK:
This subclass is indented under the class definition. Subject matter that relates to a substrate onto which a non-chemically reactive color layer will be selectively conveyed from a thermal transfer donor through application of heat and direct contact to set a pattern thereon.

SEE OR SEARCH THIS CLASS, SUBCLASS:
32.52, for the combination of a receiver and a thermal transfer donor.
32.6, for a thermal transfer donor (e.g., ribbon, sheets, etc.) per se.

32.5 Particles in receiving media:
This subclass is indented under subclass 32.39. Subject matter wherein the receiver includes particles.

32.51 Retransferable (i.e., receiving layer utilizable as ink transferable donor):
This subclass is indented under subclass 32.39. Subject matter wherein an imaged receiver will act as an image donor to a secondary receiver.

32.52 Thermal transfer donor attached:
This subclass is indented under subclass 32.39. Subject matter that additionally includes a product for thermally forming a record that includes (a) a non-chemically reactive color transfer layer of which a portion is selectively conveyed through application of heat and direct contact to set a pattern on a receiver, (b) a non-transferable support (i.e., carrier) for the transfer layer, and (c) also may include on the support specialized non-transferable layer(s) having characteristics that promote easy handling of the support or removal of the selectively transferred portion.

32.6 THERMAL TRANSFER DONOR (E.G., RIBBON, SHEETS, ETC.):
This subclass is indented under the class definition. Subject matter that relates to a product for thermally forming a record that includes (a) a non-chemically reactive color transfer layer of which a portion is selectively conveyed through application of heat and direct contact to set a pattern on a receiver, (b) a non-transferable support (i.e., carrier) for the transfer layer, and (c) also may include on the support specialized non-transferable layer(s) having characteristics that promote easy handling of the support or removal of the selectively transferred portion.

SEE OR SEARCH CLASS:
503, Record Receiver Having Plural Interactive Leaves or a Colorless Color Former, Method of Use, or Developer Therefor, for material which is used to form a visible record by a reactive or interactive, usually chemical or physico-chemical, phenomenon or a method of using such a material to form a record. The formation phenomenon is one of the following: (a) The chemical decomposition of a colorless substance to form a substance having color; (b) the chemical combination of two or more colorless chemical moieties to produce a substance having color; (c) The further chemical change of (a) or (b) above, to form a color different from an original color; and (d) The chemical or physico-chemical complementarity between the bottom surface of one sheet of a record receiver and the top surface of an adjacent sheet with which the first sheet is associated.

32.61 Multiple printing (i.e., reusable):
This subclass is indented under subclass 32.6. Subject matter wherein the thermal transfer donor is intended to be used multiple times.

32.62 Porous layer containing transferable material (e.g., ink, etc.):
This subclass is indented under subclass 32.61. Subject matter wherein the transfer layer is a porous layer containing a thermally transferable color therein.

SEE OR SEARCH THIS CLASS, SUBCLASS:
321.3, for a composite having a component wherein a constituent is claimed as a liquid ink that is contained within the pores of a carrier material (i.e., gener-

ally extrudable from the pores by application of pressure).

32.63 Support properties specified (e.g., shrinkability, thermal conductivity, etc.):
This subclass is indented under subclass 32.6. Subject matter wherein physical properties (e.g., shrinkability, thermal conductivity, etc.) of the support are set forth.

(1) Note. Having multiple layers on the support will not be considered enough to qualify for this subclass unless physical properties of the support are specified.

SEE OR SEARCH THIS CLASS, SUBCLASS:
32.64, for a support having a specialized heat source contacting layer.
32.9, a support having a specialized non-transferable layer thereon.

32.64 Specialized heat source contacting layer (i.e., back layer) on support:
This subclass is indented under subclass 32.6. Subject matter wherein a non transferable backing layer on the support is specifically adapted for contacting of a heat source .

32.65 Having electrical resistance specified:
This subclass is indented under subclass 32.64. Subject matter wherein the layer adapted for contacting a heat source is resistant to the flow of electrically.

32.66 Having heat resistance and lubricity specified:
This subclass is indented under subclass 32.64. Subject matter wherein the layer adapted for contacting a heat source has a numerically specified heat resistance and a capacity to reduce friction.

32.67 Having lubricity specified:
This subclass is indented under subclass 32.64. Subject matter wherein the layer adapted for contacting a heat source has a capacity to reduce friction.

32.68 Having heat resistance specified:
This subclass is indented under subclass 32.64. Subject matter wherein the layer adapted for contacting a heat source has a numerically specified heat resistance.

32.69 Particles in transfer layer:
This subclass is indented under subclass 32.6. Subject matter wherein the thermal transfer layer contains particles.

32.7 Meltable particles:
This subclass is indented under subclass 32.69. Subject matter wherein the particles are capable of being melted during the transfer.

32.71 Glass or ceramic particles:
This subclass is indented under subclass 32.69. Subject matter wherein the particles are glass or ceramic.

32.72 Resin particles:
This subclass is indented under subclass 32.69. Subject matter wherein the particles are made from a natural or synthetic polymer.

32.73 Microcapsule particle:
This subclass is indented under subclass 32.72. Subject matter wherein the particles have a coated or encapsulated core.

32.74 Metal particles:
This subclass is indented under subclass 32.69. Subject matter wherein the particles are metal or metal alloy.

32.75 Multiple colors transferable (e.g., stacked, etc.):
This subclass is indented under subclass 32.6. Subject matter wherein the transfer layer contains more than one color that will transfer.

32.76 Lateral diverse colors:
This subclass is indented under subclass 32.75. Subject matter wherein the multiple colors of the transferable layer are in a side by side array.

32.77 Multiple layers transfer:
This subclass is indented under subclass 32.6. Subject matter wherein there are more than one layer that comprise the thermally transferable material.

32.78 Separate adhesive layer transfers:
This subclass is indented under subclass 32.77. Subject matter wherein a layer identified as adhesive is one of the thermally transferable layers.

32.79 Adhesive outermost layer:
This subclass is indented under subclass 32.78. Subject matter wherein the adhesive layer will be a layer that first contacts the receiver.

32.8 Specialized non-transferable layer on support:
This subclass is indented under subclass 32.6. Subject matter wherein the support has a non-transferable layer thereon that has identified specialized characteristics.

SEE OR SEARCH THIS CLASS, SUBCLASS:
32.63, for supports having specified physical properties.
32.64, for having a specialized heat source contacting layer.

32.81 Release enhancing layer:
This subclass is indented under subclass 32.9. Subclass wherein the specialized non-transferable layer has a characteristic that enables easy removal of the transferable material.

32.82 Wax in release layer:
This subclass is indented under subclass 32.81. Subject matter wherein the release enhancing non-transferable layer contains a low melting mixture of organic materials or a compound of high molecular weight which is solid at room temperature similar to fats and oils except containing no glycerides and referred to as wax.

32.83 Wax in transfer layer:
Subject matter under 32.6 wherein the transfer layer contains a low melting mixture of organic materials or a compound of high molecular weight which is solid at room temperature similar to fats and oils except containing no glycerides and referred to as wax.

32.84 Wax and resin in transfer layer:
Subject matter under 32.83 wherein, in addition to wax, the transfer layer contains a natural or synthetic polymer.

32.85 Copolymer in transfer layer:
Subject matter under 32.6 wherein the transfer layer contains a polymer derived from more than one monomer unit.

32.86 Multiple resins in transferable material:
This subclass is indented under subclass 32.6. Subject matter wherein the transfer layer contains plural distinct polymers that are not covalently bonded to each other.

32.87 Physical property (e.g., melting point, softening point, glass transition point, etc.) of transferable material specified:
This subclass is indented under subclass 32.6. Subject matter wherein the transfer layer has a specified physical property of set forth in the claim.

33 This subclass is indented under the class definition. Article* comprising a plurality of portions arranged with complementary areas to enable attachment of the portions to make different shapes, and to permit detachment of the portions at will.

(1) Note. The portions herein are similar to jigsaw puzzle pieces and can be assembled and disassembled at will. If any tool must be used, or a portion permanently deformed so as to be further unusable, the article is excluded from this subclass and will be found below, or elsewhere, on other features.

34 This subclass is indented under the class definition. Product which comprises at least two light transmissive components secured in spaced relation and cooperating to create an airtight void.

(1) Note. At least one of the components must be transparent in order that objects may be seen therethrough.

(2) Note. The term “gas” includes a vacuum as well as gas under pressure.

SEE OR SEARCH THIS CLASS, SUBCLASS:
38, for a plural layer* sheet* of light transmissive material having an opaque border or frame, which layers* are not spaced from one another.
426+, for a nonstructural laminate including a layer* of glass and especially 438+ for automobile safety glass in which an intermediate layer*, usually of cel-

lulosic material, bonds two sheets* of glass, thus leaving no space therebetween.

SEE OR SEARCH CLASS:

52, Static Structure (e.g., Buildings), subclasses 171.3+ for a residual transparent panel with treating means, subclass 204.52 for a double pane panel with an open vent or plugged vent and subclasses 783.1+ for a sandwich or hollow panel and see section VI, C 3d of the class definition of this Class 428.

215, Bottles and Jars, subclasses 12.1+ for a hermetrically sealed bottle or jar.

220, Receptacles, subclasses 592.05 and 62.18 for a receptacle having spaced inner and outer walls.

34.1 HOLLOW OR CONTAINER TYPE ARTICLE (E.G., TUBE, VASE, ETC.):

This subclass is indented under the class definition. Article* having an opening therethrough or having a cavity which may or may not be filled with another material.

(1) Note. This subclass is the locus for patents which claim a tube or a container merely by name with no details recited of structure associated therewith such as wall structure, openings, etc. For articles of this type which are more specifically claimed, see VI, C., 3 a., in the main classification definitions where significant wall structure is discussed as it relates to patent placement in other "container or tube" type classes. Also see search notes below.

(2) Note. Since the classification lines between Class 428 and Classes 138, 206, 215, 220, 229, and 383 are not always clearly defined, it is suggested that a search for a coated tubular object or container include pertinent subclasses in all of the above classes.

(3) Note. Subclass 38.1 includes but is not limited to vessels, trays and annular articles not elsewhere provided for.

SEE OR SEARCH THIS CLASS, SUBCLASS:

21, for a three dimensional artificial fruit article which may be in the form of a hollow or container type product.

SEE OR SEARCH CLASS:

47, Plant Husbandry, subclasses 41.01+ for a receptacle, per se, which has structure or means for growing a live plant (e.g., drain hole, watering wicks, etc.) or for the combination of a receptacle and a freshly cut plant, treated, or with means, to prolong the characteristics of life.

138, Pipes and Tubular Conduits, appropriate subclasses, for a tube or conduit which is defined in terms of its wall structure (e.g., spiral seam, coating on inner or outer wall, etc.) and not merely by its composition. See also section VI, B, of the definition of this Class 428, reference to Class 138.

150, Purses, Wallets, and Protective Covers, appropriate subclasses, for an article of this type in which details of the receptacle are recited such as wall structure, mouth frame, compartments, etc.

206, Special Receptacle or Package, subclass 423 for a container for holding either freshly cut or artificial vegetation, either as the container, per se, or as the combination with the artificial plant.

215, Bottles and Jars, appropriate subclasses, for a glass article of this type which is claimed specifically as a bottle or jar by reciting details thereof such as the wall structure, neck, specific orientation of a coating on the inside or outside of a wall, filling opening, etc.

220, Receptacles, appropriate subclasses, for a container of the type which is claimed specifically as a receptacle by reciting details thereof such as wall structure, side, bottom, filling opening, or specific orientation of a coating on the inside or outside of a wall; see especially Class 220, subclasses 62.11+.

383, Flexible Bags, appropriate subclasses for flaccid or flexible bags which are more than nominally claimed.

34.2 Paper containing (e.g., paperboard, cardboard, fiberboard, etc.):
This subclass is indented under subclass 34.1. Article* containing paper* according to the class definition.

(1) Note. Included are paper fibers, paperboard, cardboard, fiberboard, etc.

34.3 Bag or tubular film (e.g., pouch, flexible food casing, envelope, etc.):
This subclass is indented under subclass 34.2. Article* in the form of a flexible tubular film or bag-like product which contains paper.

(1) Note. Tubular film includes products claimed or specified as such or tubes claimed or specified as made from such a film.

34.4 Glass, ceramic, or sintered, fused, fired, or calcined metal oxide or metal carbide containing (e.g., porcelain, brick, cement, etc.):
This subclass is indented under subclass 34.1. Article* which contains glass*, ceramic*, or a metal oxide or metal carbide material which is sintered, fused, fired, or calcined.

34.5 Contains fabric, fiber, particle, or filament made of glass, ceramic, or sintered, fused, fired, or calcined metal oxide, or metal carbide or other inorganic compound (e.g., fiber glass, mineral fiber, sand, etc.):
This subclass is indented under subclass 34.4. Article* which contains fabric*, fibers, particles, or filaments which are composed of glass, ceramic, metal oxide or metal carbide, or some other inorganic compound.

(1) Note. Included are fiber glass, mineral fibers, sand, graphite, carbon, glass chips, etc.

34.6 Multilayer (continuous layer):
This subclass is indented under subclass 34.4. Article* which has two or more distinct layers.

(1) Note. This subclass does not include as "multilayer", discontinuous layers (i.e., designs on a vase or nonwraparound label on a container), slightly overlapping single sheet or film, or a coating on the seam, edge, or rim only of a tubular article or container. A glass container with a sleeve around a segment of or around the whole container can be found in this subclass. An impregnated single-layered article is considered multilayered only if the depth of impregnation is defined (see the class definition, Glossary, "Web" Note (2)). See subclass 34.4 for placement of articles not meeting the definition requirements of this subclass as stated herewith.

(2) Note. If unable to determine whether the article is single or multilayered from the claims or the specification, place the original classification in the first appropriate subclass which will take either single or multilayers and generally cross to the specific subclass for single layer or multilayer, whichever is available.

34.7 Polymer or resin containing (i.e., natural or synthetic):
This subclass is indented under subclass 34.6. Article* which contains any natural or synthetic polymer or resin.

(1) Note. A polymer or resin in this subclass requires a repeat unit of an organic moiety.

(2) Note. In addition to the well-known polymers or resins, also included are cellulose, cellulose derivatives and proteins.

34.8 Flexible food casing (e.g., sausage type, etc.):
This subclass is indented under subclass 34.1. Article* which is a flexible casing for food products such as sausage.

SEE OR SEARCH THIS CLASS, SUBCLASS:
35.2, for a tubular film with no reference to use as a food casing.

SEE OR SEARCH CLASS:
138, Pipes and Tubular Conduits, subclass 118.1 for nonedible food casings with more than nominal wall structure.

206, Special Receptacle or Package, subclass 802 for a Cross-Reference Art Collection of shirred casings.

426, Food or Edible Material: Processes, Compositions, and Products, subclasses 105, 135, and 138+ for edible food casings or casings containing a food product.

34.9 Shrinkable or shrunk (e.g., due to heat, solvent, volatile agent, restraint removal, etc.):
This subclass is indented under subclass 34.1. Article* which has the characteristic of being shrinkable or already shrunk by exposure to a special treatment.

(1) Note. Treatments may include a temperature increase, the addition or removal of a solvent or other agent, or removal of a restraint holding the article or a part of the article in an expanded or unnatural state.

35.1 Single layer (continuous layer):
This subclass is indented under subclass 34.9. Article* which is a single layer.

(1) Note. See subclass 34.6, Note (1) for an explanation of what makes a layer and Note (2) for situations where the number of layers is unclear from the claims or the specification.

35.2 Nonself-supporting tubular film or bag (e.g., pouch, envelope, packet, etc.):
This subclass is indented under subclass 34.1. Article* which is a tubular film or bag-like container (e.g., pouch, sack, packet, envelope, butterfly pouch, pouch, pocket-like container, etc.).

(1) Note. See subclass 34.3, Note (1) for tubular film explanation.

SEE OR SEARCH THIS CLASS, SUBCLASS:

35.7+, for self-supporting or rigid tubular object. If unclear from the claims or specification whether the tubular object is nonself-supporting, place the original in subclasses 35.7+ and generally cross to subclasses 35.2+.

35.3 Elemental metal containing:
This subclass is indented under subclass 35.2. Article* which contains elemental metal*.

35.4 Contains vapor or gas barrier, polymer derived from vinyl chloride or vinylidene chloride, or polymer containing a vinyl alcohol unit:
This subclass is indented under subclass 35.2. Article* which contains a claimed vapor or gas barrier property and/or contains a polymer of vinyl chloride and/or vinylidene chloride, or a polymer containing a vinyl alcohol unit.

(1) Note. If unclear as to whether vapor and gas barrier properties are present from the claims, but the specification recites the presence, place the original in the appropriate subclass according to the claims and generally cross to this subclass.

35.5 Single layer (continuous layer):
This subclass is indented under subclass 35.2. Article* in ... with a single layer.

(1) Note. A single layer, bag-like article is one with two layers or sheets sealed around the edges to form the bag-like structure.

(2) Note. See subclass 34.6, Note (2) if unclear from the claims or the specification whether the article is single or multilayer.

35.6 Cellular material derived from plant or animal source (e.g., wood, cotton, wool, leather, etc.):
This subclass is indented under subclass 34.1. Article* which contains a cellular material derived from a plant or animal source, but excludes fossilized matter.

(1) Note. Cellular material includes naturally occurring material which still retains a certain amount of the original tissue structure of the plant or animal. Such material includes wood, wool, cotton, bark, cork, leather, hair, etc.

(2) Note. In the absence of information to the contrary, a cellulose, cellulose deriv-

ative, or protein is presumed devoid of cell structure unless indicated otherwise.

35.7 Polymer or resin containing (i.e., natural or synthetic):
This subclass is indented under subclass 34.1. Article* which contains a polymer or resin of natural or synthetic origin.

(1) Note. See subclass 34.7, Note (1) for definition of polymer or resin and Note (2) for examples of polymers.

35.8 Elemental metal containing (e.g., substrate, foil, film, coating, etc.):
This subclass is indented under subclass 35.7. Article* which contains elemental metal in the form of a substrate, film, coating, particles, etc.

35.9 Three or more layers (continuous layer):
This subclass is indented under subclass 35.8. Article* which contains 3 or more layers.

(1) Note. See subclass 34.6, Note (1) for what a layer is and what it is not. See Note (2) for what to do when the number of layers is unclear from the claims or the specification.

36.1 Textile, fabric, cloth, or pile containing (e.g., web, net, woven, knitted, mesh, nonwoven, matted, etc.):
This subclass is indented under subclass 35.7. Article* of ... which contains a textile*, fabric*, cloth*, pile fabric, felt, net, web, mesh, or the like.

(1) Note. The textile, etc., can be woven or nonwoven, knitted, matted, etc.

36.2 Textile, fabric, cloth, or pile is sandwiched between two distinct layers of material unlike the textile, fabric, cloth, or pile layer:
This subclass is indented under subclass 36.1. Article* of ... which has a textile, fabric, cloth or pile layer sandwiched between two distinct layers of a material unlike the textile, fabric, cloth, or pile.

(1) Note. An embedded textile, fabric, cloth, or pile is not considered to be a sandwiched layer. It is considered a single layer and therefore is subclass 36.1 subject matter. Also considered subclass 36.1 subject matter is a multilayered article where the layers on either side of the textile, fabric, cloth, or pile layer are identical to the textile, fabric, cloth, or pile layers.

36.3 Fiber or fibers wound around each other or into a self-sustaining shape (e.g., yarn, braid, fibers shaped around a core, etc.):
This subclass is indented under subclass 35.7. Article* of ... which contains a fiber or multiple fibers which are wound around each other as in a braid or yarn or are wound or wrapped around a core or in such a way to form a self-sustaining structure or shape.

36.4 Randomly noninterengaged or randomly contacting fibers, filaments, particles, or flakes:
This subclass is indented under subclass 35.7. Article* of ... which contains fibers, filaments, particles, or flakes which are in random contact or random disarray with each other.

(1) Note. The fibers, filaments, particles, or flakes do not themselves give the claimed article a structure. They can, however, be oriented in a given direction. These fibers, etc., are usually included for reinforcement or as fillers.

36.5 Foam or porous material containing:
This subclass is indented under subclass 35.7. Article* which contains a foam or porous material.

(1) Note. A porous material is cellular in that is has small open or interconnected voids.

36.6 Contains vapor or gas barrier, polymer derived from vinyl chloride or vinylidene chloride, or polymer containing a vinyl alcohol unit:
This subclass is indented under subclass 35.7. Article* which contains a vapor or gas barrier property, contains a polymer derived from vinyl chloride and/or vinylidene chloride, and/or contains a polymer with a vinyl alcohol unit.

(1) Note. See subclass 35.4, Note (1) for cases where it is unclear from the claims whether vapor and gas barrier properties are present.

36.7 Vapor or gas barrier, polymer derived from vinyl chloride or vinylidene chloride, or polymer containing a vinyl alcohol unit is sandwiched between layers (continuous layer):

This subclass is indented under subclass 36.6. Article* where the vapor or gas barrier, the polymer derived from vinyl chloride or vinylidene chloride, or the polymer containing a vinyl alcohol unit is found in a layer sandwiched between two other separate and distinct layers.

36.8 Natural or synthetic rubber or rubber-like compound containing:

This subclass is indented under subclass 35.7. Article which contains a natural or synthetic rubber or rubber-like compound.

36.9 Open-ended, self-supporting conduit, cylinder, or tube-type article:

This subclass is indented under subclass 35.7. Article* which is tubular or cylindrical, has openings at both ends, and which can hold its own structure without the aid of a filler or support.

(1) Note. The difference between the products in this subclass and a hollow strand*, fiber* or filament in subclasses 364+ is as follows: the present subclass 36.9 is the locus for a conduit type article through which a fluid passes and is generally of substantially larger size (e.g., 3-dimensional) than the strand*, fiber* or filaments found in subclasses 364+. If it is difficult to determine from the disclosure whether the article is of the type which should be classified in this subclass or in the latter, all doubts should be resolved in favor of the strand*, filament*, or fiber* and placement made in those subclasses.

SEE OR SEARCH THIS CLASS, SUBCLASS:

364+, for a structurally defined or coated filament*, fiber* or strand* which could be hollow or open at both ends, and see (1) Note above for the line between the two subclasses.

36.91 Multilayer (continuous layer):

This subclass is indented under subclass 36.9. Article* which contains two or more layers.

(1) Note. See subclass 34.6, Notes (1) and (2) for what a layer is and is not and for what to do when the number of layers is unclear from the claims or the specification.

36.92 Single layer (continuous layer):

This subclass is indented under subclass 35.7. Article which is a single continuous layer.

(1) Note. See subclass 34.6, Notes (1) and (2) for what a layer is and is not and for what to do when the number of layers is unclear from the claims or the specification.

37 This subclass is indented under the class definition. Product wherein a strand* or strip* is arranged, and held in fixed coiled relation and lying in a common plane to constitute a unitary sheet*.

(1) Note. A patent wherein the convolutions of a spirally flat-wound strand* or strip* are held in position by stitching will be found in this subclass.

SEE OR SEARCH THIS CLASS, SUBCLASS:

222, for a web* or sheet* containing a helical component*.

298.1, for parallel strands* or strand-portions* joined to each other by adhesive.

SEE OR SEARCH CLASS:

112, Sewing, subclass 412, for parallel strands*, or strand-portions*, jointed to each other by sewing. a receptacle, per se, which has structure or means for growing a live plant (e.g., drain hole, watering wicks, etc.) or for the combination of a receptacle and a freshly cut plant, treated, or with means, to prolong the characteristics of life.

138, Pipes and Tubular Conduits, appropriate subclasses, for a spirally wound

product of the type provided for in that class.

38 This subclass is indented under the class definition. Article* comprising at least two parts, the former permitting passage of light therethrough and the latter, preventing passage of light, forming a closed continuous frame or border on at least a portion of the former part.

(1) Note. This subclass is the locus for an artificial or natural stained glass window and for a safety glass auto windshield having a frame therearound.

(2) Note. "Continuous" in the above definition is intended to include a frame or border made of separate and individual parts but abutting with each other to eliminate any space between the parts.

(3) Note. Included in this definition is a light transmissive single or plural layer* sheet* having an opaque area forming a frame or border around a small portion of the sheet*.

SEE OR SEARCH THIS CLASS, SUBCLASS:

34, for an article in which overlying light transmissive masses are spaced from one another and sealed at their edges, which seal may be opaque to light.

67, for similar structure in which the former portion does not permit light to pass therethrough.

426+, for sheets* of glass laminated to each other by an intermediate layer* of light transmissive material but having no frame or other opaque portion.

SEE OR SEARCH CLASS:

73, Measuring and Testing, subclasses 323+ for a similar device, the sole disclosure of which is for use as a sight or inspection window or gauge glass.

351, Optics: Eye Examining, Vision Testing and Correcting, subclasses 41+ for similar subject matter in the form of a spectacle lens within an opaque frame.

442, Fabric (Woven, Knitted, or Nonwoven Textile or Cloth, etc.), for a product in which the opaque frame or border comprises a netted or open-mesh component and there is no light transmissive or translucent mass.

39 This subclass is indented under the class definition. Product which is assembled from a plurality of discrete parts which, taken together, give the appearance of, or representation of, a real object and is at least partially the result of the outline and contrast of the parts.

40.1 Layer or component removable to expose adhesive:

This subclass is indented under the class definition. Product comprising a composite*, web*, or sheet* having layers* or components* which are removable one from the other and one of which has an outermost coating comprising adhesive, exposed when the layers* or components* are separated, so as to enable the adhesive coating to be adhered to another surface.

SEE OR SEARCH THIS CLASS, SUBCLASS:

352, for a composite web or sheet having a layer of adhesive as an outermost coating and a release or antistick coating associated therewith, usually on the side of the base opposite to the adhesive layer.

40.2 Capsule or particulate matter containing: (e.g., sphere, flake, microballoon, etc.):

This subclass is indented under subclass 40.1. Subject matter wherein the layer or component contains capsules and/or particulate matter that are solid, hollow, or filled with another material.

40.3 Bituminous:

Subject matter under subclass, 40.1 wherein the layer or component contains bitumen, asphalt, or a tarlike component.

40.4 Ceramic, glass, glasslike, vitreous:

This subclass is indented under subclass 40.1. Subject matter wherein the layer or component contains a ceramic, glassy, or vitrified component.

40.5 Wax containing:
This subclass is indented under subclass 40.1. Subject matter wherein the layer or component contains a natural or synthetic wax.

40.6 Halogen containing compound:
This subclass is indented under subclass 40.1. Subject matter wherein the layer or component contains a halogenated compound.

40.7 Fluorine:
This subclass is indented under subclass 40.6. Subject matter wherein the halogen is fluorine.

40.8 Coloring agent containing:
This subclass is indented under subclass 40.6. Subject matter wherein the layer or component contains a material having tinctorial properties.

40.9 Metal containing:
This subclass is indented under subclass 40.1. Subject matter wherein the layer or component contains free metal or combined metal and includes alloys and metal compounds.

41.1 Aluminum:
This subclass is indented under subclass 40.9. Subject matter wherein the metal is aluminum.

41.2 Coloring agent containing:
This subclass is indented under subclass 40.9. Subject matter wherein the layer or component contains a material having tinctorial properties

41.3 Polymer derived from ethylenically unsaturated monomer:
This subclass is indented under subclass 40.1. Subject matter wherein the layer or component contains a polymer derived only from ethylenically unsaturated monomer(s), i.e., wherein the monomer contains a c=c which undergoes addition polymerization to form long c-c chains.

41.4 Silicon:
This subclass is indented under subclass 41.3. Subject matter wherein the layer or component contains silicon as free element, combined element, or in a compound.

41.5 Polymer derived from material having at least oneacrylic or alkacrylic group or the nitrile or amidederivative thereof: (e.g., acrylamide, acrylate ester, etc.):
This subclass is indented under subclass 40.1. Subject matter wherein the layer or component contains a polymer derived from at least one of the following reactants: R XR////CH_2=C-C-N-R, CH_2=C-C=N,R X/// CH_2=C-C-OR and wherein X is chalcogen (i.e., oxygen, sulfur, selenium, or tellurium) and R is hydrogen or alkyl.

41.6 Coloring agent:
This subclass is indented under subclass 40.1. Subject matter wherein the layer or component contains a material having tinctorial properties.

41.7 Protective layer:
This subclass is indented under subclass 40.1. Subject matter wherein the layer or component is covered by a resistant layer, e.g. resistant to heat, cold, oxidation, pollution, etc.

41.8 Release layer:
This subclass is indented under subclass 40.1. Subject matter wherein the layer or component contains a bond inhibiting material or parting material used to prevent adhesion between lamina in areas that might otherwise bond in the absence of the material.

41.9 Dissimilar adhesives:
This subclass is indented under subclass 40.1. Subject matter wherein the layer or component contains at least two adhesives differing in composition, or differing in tackiness

42.1 Ornamental, decorative, pattern, or indicia:
This subclass is indented under subclass 40.1. Subject matter in which the layer or component contains a material that has an appearance or other psychological effect which conveys information or is designed to be esthetically pleasing.

42.2 Sectional layer removable:
This subclass is indented under subclass 40.1. Product in which the layer which is removable comprises a plurality of components which are noncoextensive with either the length or the width of the other layer.

(1) Note. This subclass contains for example a web or sheet on which there is posi-

tioned a plurality of serially arranged adhesively coated labels which are removed and then adhered to a surface.

SEE OR SEARCH THIS CLASS, SUBCLASS:

343+, for a composite web or sheet in which there is anadhesive coating exposed and on the outside hereof.

42.3 Adhesive is on removable layer:
This subclass is indented under subclass 42.2. Product in which the adhesive or sticky substance is on the part which has been removed.

43 This subclass is indented under the class definition. Product comprising a sheet*, web* or layer* having a portion thereof made less strong so as to permit easy separation at this portion through the thickness portion either longitudinally or transverse or at an angle to the plane of the product.

(1) Note. Examples of weakening are - perforating, scoring, or dissolving a portion of the web, sheet or layer.

SEE OR SEARCH THIS CLASS, SUBCLASS:

131, for similar structures including perforations or apertures, however, not for the purpose of facilitating separation of two portions at the perforations.

156+, for similar structure including a score line, or variation in thickness, but not for the purpose of providing a tear line or weakened portion.

44 This subclass is indented under the class definition. Product containing a single layer* of at least three separate, discrete and identifiable parts both laterally and longitudinally associated (i.e., in a nonthickness direction) so that it is impossible to draw a single straight line through the geometric center of all the parts of the single layer*.

(1) Note. Excluded under this definition is a web or sheet having a perimeter structure which appears to meet the definition. The identifiable parts in this subclass do not have any additional structure at the perimeter thereof. A floor of tile squares is exemplary of the subject matter in this locus.

45 This subclass is indented under subclass 44. Product which has a border or other modification or embellishment of its entire perimeter, not of the individual sections.

46 This subclass is indented under subclass 44. Product comprising a part or layer which permits light to pass therethrough.

(1) Note. Any layer or section may be transparent or translucent for purposes of this subclass, e.g., the sectional layer may be made of completely transparent sections or an opaque sectional layer may be adjacent to a continuous layer which is transparent.

SEE OR SEARCH THIS CLASS, SUBCLASS:

38, for a product which has a transparent or translucent part fitted in or over a through opening in another part or in a border therefor.

47 This subclass is indented under subclass 44. Product in which the sectional layer is adjacent to a unitary web* or sheet* which extends outwardly in both lateral and longitudinal directions up to or beyond the boundary of the sectional layer.

48 This subclass is indented under subclass 47. Product wherein the sectional layer has no voids or spaces in both longitudinal and lateral directions.

(1) Note. The continuity of the layer may be due to edge abutment of the parts thereof, or, if there be spaces between the parts a material completely filling such spaces.

49 This subclass is indented under subclass 48. Product wherein the distinct parts are made of (1) free or alloyed metal, (2) glass* or (3) ceramic* material and the product is commonly known as tile.

50 This subclass is indented under subclass 48. Product in which the distinct parts comprise cellulose* in either its natural or modified state.

51 This subclass is indented under subclass 47. Product wherein at least one of the parts of the sectional layer has a periphery other than four sides and four right angles.

SEE OR SEARCH THIS CLASS, SUBCLASS:
64.1+, for a circular sheet.
80, for a sheet which is nonrectangular.

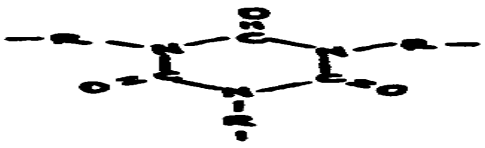
52 This subclass is indented under subclass 44. Product in which the layer is made of parts at least two of which are united by a distinct mechanical connection extending over the edges thereof and so arranged as to permit movement between the parts.

(1) Note. The motion may be due to (1) freedom in the mechanical connection between the fastener and the part or (2) free or lost motion in the fastener itself.

53 This subclass is indented under the class definition. Product comprising at least three sheets* or webs*, all lying in a single plane and each connected to another by an edge portion which comprises at least two different planes and having means joining the sheets* or webs* together.

(1) Note. The means for joining or securing may be either mechanical or chemical (i.e., adhesive, etc.).

(2) Note. The different planes may be either in thickness, i.e., the top image or or along a nonthickness surface*, i.e., the lower image below.



54 This subclass is indented under the class definition. Product formed of at least three parts joined at an end, forming a layer* in which the parts extends longitudinally, the longitudinal extent of each part being less than the overall length of the product.

(1) Note. In the absence of a clear indication that the sections of the sectional layer are longitudinally coextensive with the longest dimension of the product, the sectional layer will be presumed to be longitudinally sectional for this and indented subclasses.

SEE OR SEARCH THIS CLASS, SUBCLASS:
44+, for a product comprising a plurality of parts joined together both laterally and longitudinally.
53, for a product which may be sectioned longitudinally, but in which the separate parts interfit on complementary faces and have additional joining or securing means.
189+, for a product in which at least one side-edge of a layer or component of a composite product is laterally offset from the corresponding side edge of a second layer or component.

55 This subclass is indented under subclass 54. Product wherein the layer of joined parts is contiguous to a unitary web or sheet which extends outwardly in both directions (1) up to or (2) beyond the boundary of the layer.

SEE OR SEARCH THIS CLASS, SUBCLASS:
47+, for a composite sheet or web comprising a layer sectional in two dimensions adjacent to another sheet or web of equal or greater size.

56 This subclass is indented under subclass 55. Product in which the layer has no voids or spaces between the joined parts in both directions of its plane.

(1) Note. The continuity of the layer may be due to edge abutment of the parts thereof, or if there be voids or spaces between the parts, a material filling such spaces.

SEE OR SEARCH THIS CLASS, SUBCLASS:

48, for a composite* sheet or web comprising a continuous layer sectional in two dimensions adjacent to another sheet or web of equal or greater size.

77+, for a composite product comprising two sheets, one of which is longitudinally noncoextensive with the other.

57 This subclass is indented under the class definition. Product wherein two sheets* or webs* are joined in either edge abutting or edge overlapping relationship.

SEE OR SEARCH THIS CLASS, SUBCLASS:

38, for a translucent portion or part joined at the edge or edges thereof in an aperture or frame.

53, for a product comprising at least three areas.

189+, for a product comprising a plurality of components* arranged edge to edge but not joined or spliced.

58 This subclass is indented under subclass 57. Product wherein the sheets or webs are joined together so as to lie in a single plane.

59 This subclass is indented under subclass 58. Product comprising a plurality of sheets or webs connected to each other and each sheet or web comprising a plurality of hills and valleys extending parallel to each other.

(1) Note. The connection may be through the intermediary of a planar sheet associated with the hills and valleys, or the hills of one sheet may be directly connected to those of the other.

(2) Note. An example of the products found herein is corrugated cardboard.

60 This subclass is indented under subclass 58. Product wherein the sheets or webs are joined along two or more planes or joined along one plane not perpendicular to the surface of the sheet or web.

SEE OR SEARCH THIS CLASS, SUBCLASS:

53, for a product including at least three parts joined along two or more planes.

61 This subclass is indented under subclass 58. Product wherein the joint is reinforced by additional material which lies outside the plane of the connected sheets or webs.

62 This subclass is indented under subclass 61. Product wherein pile surfaced sheets or webs (e.g., rugs or carpets etc.) are connected.

63 This subclass is indented under the class definition. Product which comprises an article*, sheet* or web* which has an aperture or indentation and material covering the aperture or fitting the indentation so as to attempt to restore the article, sheet or web to its original condition.

SEE OR SEARCH CLASS:

264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclasses 36.1+ for repairing or restoring articles for reuse and subclass 30 for furnace lining formation or repair.

425, Plastic Article or Earthenware Shaping or Treating: Apparatus, subclasses 11+ for apparatus to repair or restore a product by molding.

64.1 CIRCULAR SHEET OR CIRCULAR BLANK:

This subclass is indented under the class definition. Product whose outer boundary is that of a single curved line every point of which is substantially the same distance from a point at the center thereof.

64.2 Recording medium or carrier:
This subclass is indented under subclass 64.1. Subject matter wherein the circular sheet or circular blank is a tangible object upon which an information signal is to be stored, the object having a characteristic which is, or may be, modified at positional increments in accordance with the time variation of information which is to be stored thereon.

(1) Note. The recording medium or carrier for purposes of these subclasses need not be the specific layer that is intended to contain the information signal. All layers of the medium or carrier are considered to be the recording medium or carrier.

SEE OR SEARCH THIS CLASS, SUBCLASS:
900, for a collection of magnetizable stock material.

SEE OR SEARCH CLASS:
360, Dynamic Magnetic Information Storage or Retrieval, subclass 135 for a disc having information recorded thereon in magnetic form.
369, Dynamic Information Storage or Retrieval, subclasses 272+ for a disc having information recorded thereon in the form of grooves.

64.4 Optical recording medium or carrier:
This subclass is indented under subclass 64.2. Subject matter wherein the recording medium or carrier is designed to undergo a chemical or physical change; e.g., irradiating the medium with a laser beam to alter the optical characteristics of the medium or carrier in the irradiated area, etc.

64.5 Tellurium containing:
This subclass is indented under subclass 64.4. Subject matter wherein the recording medium or carrier contains tellurium as a free element, combined element, or in a compound.

64.6 Protective layer:
This subclass is indented under subclass 64.5. Subject matter wherein the tellurium containing recording medium or carrier is covered by a resistant layer; e.g., resistant to heat, cold, oxidation, pollution, etc.

64.7 Polycarbonate containing:
This subclass is indented under subclass 64.4. Subject matter wherein the recording medium or carrier contains linear polyesters containing plural carbonic acid ester groups.

64.8 Coloring agent containing:
This subclass is indented under subclass 64.4. Subject matter wherein the recording medium or carrier contains a material having tinctorial properties.

64.9 Thickness specified:
This subclass is indented under subclass 64.8. Subject matter wherein the thickness of at least one layer or the overall product of the recording medium or carrier is specified.

65.1 Polymer derived from material having at least one acrylic or alkacrylic group or the nitrile or amide dervative thereof: (e.g., acrylamide, acrylate ester, etc.)
This subclass is indented under subclass 64.4. Subject matter wherein the recording medium or carrier contains a polymer derived from at least one of the following reatants: R X R R X | | | S S XCH2=C-C-N-R, CH2=C-CbN, or CH2=C-C-OR and wherein X is chalcogen (i.e., oxygen, sulfur, selenium, or tellurium) and R is hydrogen or alkyl.

65.2 Adhesive containing:
This subclass is indented under subclass 64.4. Subject matter wherein the recording medium or carrier contains a glue-like substance.

65.8 Lubricant containing:
This subclass is indented under subclass 64.2. Subject matter wherein the recording medium or carrier contains a substance that reduces friction.

65.9 Fibrous material containing:
This subclass is indented under subclass 64.2. Subject matter wherein the recording medium or carrier is composed of relatively short, slender, flexible elements of finite length.

66.1 Gear:
This subclass is indented under subclass 64.1. Subject matter wherein the circular sheet or blank is to be used as a toothed wheel, e.g., sprocket, etc.

SEE OR SEARCH THIS CLASS, SUBCLASS:
66.7, for gears wherein the size and/or shape of the teeth may be recited.

66.2 Frictional:
This subclass is indented under subclass 64.1. Subject matter wherein the circular D-5 sheet or blank is to be utilized as a means for stopping or reducing motion; e.g., brake or clutch, etc.

SEE OR SEARCH CLASS:
188, Brakes, appropriate subclasses, for a product having frictional properties where said property is enhanced by claimed external structure (e.g., disc shape, surface configuration or internal structure such as discrete zones of friction material or particular arrangements of strands*, fibers* or layers* and where the sole disclosure is that the product is used as a brake.
192, Clutches and Power-Stop Control, appropriate subclasses for a product as above described and in which the product is solely disclosed as used for a clutch, or as a brake or clutch alternatively.

66.3 End closure:
This subclass is indented under subclass 64.1. Subject matter wherein the circular sheet or blank is to be used to plug or close an opening at the end of a container or conduit.

66.4 Seal, gasket, or packing:
This subclass is indented under subclass 64.1. Subject matter wherein the circular sheet or blank is to be utilized between or around members or joints to prevent leakage there between or therefrom.

66.5 Ornamental, decorative, pattern, or indicia:
This subclass is indented under subclass 64.1. Subject matter wherein the circular sheet has an appearance or other psychological effect which conveys information or is designed to be esthetically pleasing.

66.6 Aperture containing:
This subclass is indented under subclass 64.1. Product which has a through opening.

SEE OR SEARCH CLASS:
411, Expanded, Threaded, Driven, Headed, Tool-Deformed, or Locked-Threaded Fastener, subclasses 531+ for washers to be used with a fastener of Class 411.

66.7 Edge structure:
This subclass is indented under subclass 64.1. Product in which the structure of the outer perimeter or boundary is recited.

67 This subclass is indented under the class definition. Article* comprising a base* or substrate* and set within the surface thereof, or into an opening or depression therein, at least one element* which is larger than the size usually attributed to that of a particle* or granule*, the element* being visible and resulting in a composite* product or a mosaic*.

(1) Note. Excluded from this subclass is a roofing felt containing a layer of granules or particles which may be embedded in the felt. Such a product will be found below on other features; see search notes, below.

(2) Note. Excluded from this subclass is a product in which the embedded element is completely enveloped; see search notes, below.

(3) Note. Excluded from this subclass is a product in which the element is "visible" only because it causes a variation in thickness, not because it is actually seen in the substrate.

(4) Note. Included in this subclass are articles such as jewelry, mosaics, faucet handles having decorative inlays, etc.

SEE OR SEARCH THIS CLASS, SUBCLASS:
38, for a structure in which the embedded element permits light to pass there-

through and is set into an opening or casing therefor provided in a base or substrate.

68+, for a product in which one element is completely covered by another.

87, for a product having a pile or nap surface and which has particles which may be embedded therein.

141+, for a product having a surface or layer which is nonuniform or irregular and which comprises particles.

323, for a composite web or sheet in which one layer contains structurally defined particles or granules which may be embedded therein.

338, for a single layer web or sheet having a structurally defined particle or granule which may be embedded therein.

SEE OR SEARCH CLASS:

442, Fabric (Woven, Knitted, or Nonwoven Textile or Cloth, etc.), appropriate subclasses for a woven or knitted fabric and particulate matter associated therewith and which may be embedded in the fabric.

68 This subclass is indented under the class definition. Product comprising a base sheet* with a distinct layer* of material enclosing all the edges and at least one nonthickness surface*.

(1) Note. The enclosing layer of material may either be unitary or may comprise a plurality of separate and distinct portions.

SEE OR SEARCH THIS CLASS, SUBCLASS:

126+, for a sheet* having a fold at opposed marginal edges and forming an annular cover of the product.

69 This subclass is indented under subclass 68. Product which contains a nonliquid fluid which is (1) other than the usual atmosphere or (2) at less than normal atmospheric pressure.

(1) Note. Foamed or expanded materials produced by introduction or in situ production of gas other than air will be placed in this subclass only when there is a specific disclosure or claim that the gas remains in the final product and has a desired useful function therein.

SEE OR SEARCH THIS CLASS, SUBCLASS:

310+, for a composite* web* or sheet in which at least one layer comprises foamed or expanded materials.

70 This subclass is indented under subclass 68. Product wherein an enclosed sheet comprises inorganic material which has been set to a solid product by hydration.

(1) Note. Examples of settable inorganic materials are portland cement, gypsum, plaster of paris, etc.

SEE OR SEARCH CLASS:

106, Composition: Coating or Plastic, subclasses 638+ for compositions containing ingredients which set up or solidify by hydration.

71 This subclass is indented under subclass 68. Product wherein the enclosed sheet comprised a heterogeneous mixture of a gas phase dispersed therethrough.

(1) Note. See (1) Note and search note in subclass 69 above, regarding the placement of certain foamed or expanded products.

SEE OR SEARCH THIS CLASS, SUBCLASS:

158+, 310+ and 423+, for other products containing foamed or expanded material, especially urethane.

72 This subclass is indented under subclass 68. Product comprising elements or portions of the layer or enclosure which act together to form closed compartments.

(1) Note. The cells may be formed by a single enclosed layer which has apertures therethrough and which apertures coact with the casing or cover.

(2) Note. The cells or compartments may be vacant or occupied with a material.

SEE OR SEARCH THIS CLASS, SUBCLASS:

178, 188 and 304+, for other products in which at lease one layer comprises cellular material, or in which components* and/or layers cooperate to form cells.

73 This subclass is indented under subclass 72. Product wherein the compartments are perpendicular to a nonthickness surface of the product.

(1) Note. The compartments need not be hexagonal or six sided as in the usual honeycomb; they may be of any shape but must have a continuous closed peripheral wall.

74 This subclass is indented under subclass 68. Product in which the sheet comprises noninterengaged strands* in the form of a self sustaining bat or mat (e.g., felt, etc.) or in the form of loose or free flowing or fluent material.

75 This subclass is indented under subclass 74. Product wherein the enclosing layer comprises free metal or an alloy.

76 This subclass is indented under subclass 68. Product wherein all surfaces and edges of the sheet are enclosed.

77 This subclass is indented under the class definition. Product wherein one or more sheet* is attached to a nonthickness surface* of a base sheet* or web* in face to face relationship, the base sheet or web being of greater length than the attached sheet.

(1) Note. Excluded from under this definition is a print, design or indicia or other similar discontinuous or differential coating. The present subclass (77) is intended to take only complete sheets with the adjacent base.

SEE OR SEARCH THIS CLASS, SUBCLASS:

55+, for a plurality of parts arranged longitudinally and next to a unitary sheet of greater extent.

67, for a product in which a sheet lies in a recess of another sheet.

131+, for a product in which a sheet lies entirely in a through aperture in a single layered product.

195+, for a sheet which has a discontinuous or differential coating, impregnation or bond, in effect yielding a composite layered coextensive with the lower.

78 This subclass is indented under subclass 77. Product wherein the base sheet or web is larger than the attached sheet in both length and width.

79 This subclass is indented under subclass 78. Product wherein the attached smaller sheet has an embellishment or adornment on the outline thereof.

SEE OR SEARCH THIS CLASS, SUBCLASS:

64.1+, and 80, for composite products of this type in which the smaller sheet may be of the circular or nonregular form and is so claimed.

80 This subclass is indented under the class definition. Product which is a sheet having an outer perimeter other than rectangular (i.e., four sides with right angles between each two adjacent sides).

SEE OR SEARCH THIS CLASS, SUBCLASS:

51, for a two-dimensional sectional layer in which the sections are nonrectangular.

64.1+, for a circular sheet.

81 This subclass is indented under the class definition. Product which is a sheet* wherein the structure of at least three edges or at least two nonadjacent corners is recited.

(1) Note. A sheet or web recited as "rectangular" is excluded from under this definition unless some specific perimeter or corner structure is also recited.

82 This subclass is indented under subclass 81. Product wherein the sheet has a pile or nap on at least one nonthickness surface*.

83 This subclass is indented under subclass 81. Product in which the corner or perimeter structure defines a channel or U-Shape.

84 This subclass is indented under subclass 81. Product comprising a sheet of paper*.

(1) Note. The paper may be either single or plural layer*.

85 This subclass is indented under the class definition. Product comprising a web*, sheet*, layer* or element* from the surface of which and attached thereto or integral therewith, extends looped or free ended filamentary* material, resulting in a bristly, fuzzy or resilient surface.

(1) Note. Animal skin in which the fur remains intact is considered to be pile or nap surface and will be placed in this group of subclasses.

SEE OR SEARCH THIS CLASS, SUBCLASS:

15+, for an imitation or treated natural product (other than animal skin in which the fur remains intact) which has a pile or nap type surface, especially subclass 17 for artificial grass or turf.

623, for two sections of a pile rug or carpet connected edge to edge by means of a binding tape or strip not co-planar with the sections.

SEE OR SEARCH CLASS:

15, Brushing, Scrubbing, and General Cleaning, subclasses 208+ for a cleaning implement or applicator having a pile working face.

66, Textiles: Knitting, subclasses 191 and 194 for a knitted fabric including a fleece or pile type surface.

112, Sewing, subclasses 410+ for a pile fabric in which the pile elements are attached to a base by a stitching operation.

139, Textiles: Weaving, subclasses 391+ for a woven pile fabric, per se.

86 This subclass is indented under subclass 85. Product in which the free ended or looped filamentary material is completely embedded in a layer or component* or is disposed between layers or components*.

87 This subclass is indented under subclass 85. Product in which the web, sheet or layer also has particles* associated therewith.

88 This subclass is indented under subclass 85. Product wherein (1) there is variation in the height, angles or type of the pile in different areas of the web or sheet, (2) spaced or interrupted arrangement of pile areas define a figured or sculptured design effect; or (3) the pile or nap structure at an edge of the web or sheet differs from the structure which exists over the remainder of the web or sheet.

(1) Note. A patent to a product wherein the base web* is embossed so as to product a nonplanar pile surface will be placed in this subclass.

(2) Note. Variation in type of pile may be based on use of different materials or the same material varying in a physical property (e.g., coarseness of fiber, etc.). Mere difference in color will not be considered a difference in type of pile.

(3) Note. A mere random variation in height or angle of pile which does not product a figured or sculptured design effect will not support placement of a patent in this subclass and will be classified below on other features.

89 This subclass is indented under subclass 88. Product in which (1) the height of the filamentary material from the surface of the web or sheet or layer is different in spaced areas or (2) the filamentary material differs in physical property (e.g., coarseness, proximity of filaments to each other, etc.) in different areas of the web, sheet or layer.

90 This subclass is indented under subclass 85. Product wherein the free-ended material comprises individual fibers*, either integral with a fibrous or fiber-containing base and extending

outwardly therefrom, or randomly distributed and adhesively retained on a base.

(1) Note. A patent for a fabric* having pile which has been treated additionally so as to separate individual fibers of the pile strands from each other will be placed here.

91 This subclass is indented under subclass 85. Product in which the fibers* are integral with a fibrous or fiber containing base and extend outwardly therefrom.

(1) Note. Nap is generally raised mechanically by an element moving on a fibrous material to separate individual fibers* therefrom and cause the fibers to extend outwardly.

92 This subclass is indented under subclass 85. Product in which the form or arrangement of the free ends or loops of the filamentary material is defined.

93 This subclass is indented under subclass 92. Product in which the filamentary material comprises either reversely bent discrete strand-portions* or continuous strands* secured to the web or sheet at bights which engage the strands* or strand portions*.

94 This subclass is indented under subclass 93. Product in which the filamentary material comprises an indeterminate length or a continuous strand and is joined by an adhesive or cement to the web, sheet or layer or to another part associated with the web, sheet or layer.

95 This subclass is indented under subclass 85. Product in which is defined the arrangement or constituents of (1) the web, sheet or layer to which the filamentary material is attached or (2) an additional part attached to or associated with the web, sheet, or layer.

SEE OR SEARCH THIS CLASS, SUBCLASS:

310+, for a foam material which may be used as the backing for a carpet or other pile or nap surface.

96 This subclass is indented under subclass 85. Product which is covered or saturated, at least in part, with extraneous material or is joined to another part by an adhesive substance.

97 This subclass is indented under subclass 85. Product in which the claim defines (1) the elements* or constituents* which form the filamentary material or (2) the ingredients which compose the adhesive associated with the web, sheet or layer.

(1) Note. Only a single ingredient or constituents* need be recited to qualify for this subclass, but must be specifically recited. Thus: a synthetic fiber* is not sufficient for placement in this subclass, but polyamide* or polyester* is sufficient; cement* or glue* does not qualify, but casein adhesive does.

98 This subclass is indented under the class definition. Product comprising a single or plural layer* web* or sheet* in which (1) the overall web* or sheet* has a particular size, shape or other physical configuration; (2) components* or constituents* thereof are arranged in an orderly fashion relative to a surface of the product; (3) the product comprises at least two layers* or components*, each claimed as possessing a particular characteristic which is different from the other (e.g., hardness, density, etc.); (4) the product includes a particular characteristic claimed in relation to a surface thereof; (5) there is a nonuniform thickness, planarity, surface, coating, impregnation or bond; (6) there are apertures; (7) any other characteristic is present by which the overall web* or sheet* may be identified as having a particular structure or configuration.

(1) Note. A patent directed to a plural layer stock material product identified solely in terms of the composition of at least one layer thereof will be placed in subclasses 411+ of this class (428).

(2) Note. See the Class Definition, Criteria for Patent Placement in thei Class, first paragraph, for subject matter excluded from this class (428).

(3) Note. Although a naturally occurring fibrous material such as wood is considerd to have "grain" direction (see subclasses 105 and 114) such material is not considered as a fiber-containing material in this or any indented subclass.

(4) Note. Included under this definition of "significant size" is any recitation of a measurable extent or range thereof, no matter how wide (e.g., "up to .075 mils, etc.").

(5) Note. Included under this definition of physical size is a recitation of a weight unit (e.g., grams, pounds etc.) spread over a unit of area (e.g., square feet, square meters, etc.). See also the class definition, Framework of the Class for other examples of structure.

SEE OR SEARCH THIS CLASS, SUBCLASS:

221+, for a web* or sheet* containing a structurally defined element* or component*.

357+, for a structurally defined rod*, strand*, fiber*, particle* or other element* or constituent* thereof, or a mass thereof, and especially subclasses 364+ for a product having a width substantially equal to the thickness thereof (e.g., rod*, strand*, fiber*, filament*, etc.) and claimed in terms of its particular shape or size or the shape, size or arrangements of its constituents.

411+, for a nonstructural plural layer*, web* or sheet* wherein a second component* thereof is defined in terms of its molecular orientation or crystalline structure.

SEE OR SEARCH CLASS:

36, Boots, Shoes, and Leggings, subclasses 30 and 44 for a laminated shoe part.

112, Sewing, subclasses 400+ for a sewn web or sheet; and see section VI A1(a)(4) of this definition.

198, Conveyors: Power-Driven, appropriate subclasses for an endless belt or stock material including specific structure for carrying material in a horizontal plane.

248, Supports, for a vibration damping ring support.Also, see section VI of this definition for additional classes related to this subclass.

400, Typewriting Machines, subclasses 237+ for an inking ribbons especially adapted for typewriting machines.

424, Drug, Bio-Affecting and Body Treating Compositions, subclasses 443+ for a web or sheet including a composition of that class.

99 This subclass is indented under subclass 98. Product in which the web or sheet has means secured thereto or integral with a surface or edge thereof for attachment and detachment at will to a surface or support or to cooperating fastening means.

(1) Note. A buttonhole, nail hole or similar aperture is not considered an external fastening means within the definition of this subclass.

(2) Note. This subclass is the residual locus for a web or sheet including an external fastener.

SEE OR SEARCH THIS CLASS, SUBCLASS:

223, for a composite product in which plural layers are connected by a separate and distinct mechanical connecting member extending over the edges of and/or into a plurality of layers or components.

SEE OR SEARCH CLASS:

24, Buckles, Buttons, Clasps, etc., subclasses 572+ for separable-fasteners.

52, Static Structures (e.g., Buildings), appropriate subclass, for a building structure component with external fastening means.

112, Sewing, subclasses 406+ for a separable fastener secured to a base web or sheet by stitching; subclass 431 for a sewn buttonhole including a floating strand around its edge; and subclass 437, for a sewn buttonhole.

100 This subclass is indented under subclass 99. Product in which the fastener comprises a part which (1) is curved or otherwise bent back towards itself and has a free end on which another part may be caught or held or (2) has a point curving or projecting backwards therefrom and onto which another part may be caught or held.

(1) Note. The hook or barb may be part of a fiber or filament or strand in a component so made as to catch or hold onto another component.

101 This subclass is indented under subclass 98. Product wherein layers or components are arranged in overlying relation and are permanently connected in such manner as to permit relative translational movement between them (i.e., in one plane only, vertical, horizontal or oblique).

SEE OR SEARCH THIS CLASS, SUBCLASS:

223, for a composite web or sheet in which the components are joined to each other by a fastener extending over the edges of and/or into a plurality of layers or components.

102 This subclass is indented under subclass 98. Product wherein the web or sheet is embellished by, or has portions joined, reinforced or held in position by, a strand* so disposed within the product that it must have been introduced therein by an eyed needle, and also has at least some portion thereof (1) held in position by a separate and distinct mechanical connecting member(s) (2) covered or saturated with extraneous material, or (3) joined to another portion by adhesion or cohesion.

(1) Note. A patent for a product which includes individual stitch fastening elements, such as short pieces of wire, will be placed in this subclass.

(2) Note. Needling is not considered to be a mechanical connection or a discrete fastener; therefore a patent to a product wherein portions are joined by sewing and needling (i.e., interlocking of fibers) will not be placed in this or the indented subclasses, but will be found below on other features, see Class 442, subclasses 402+, for example.

SEE OR SEARCH THIS CLASS, SUBCLASS:

54+, for a product which consists of 3 or more components not longitudinally coextensive, and which may have been made by stitching and another fastener, coating or bond.

SEE OR SEARCH CLASS:

112, Sewing, subclasses 402+ for a sewn web or sheet, per se, and see section II of the definitions of that class (112) for the scope of that class and its relationship to other classes.

103 This subclass is indented under subclass 102. Product wherein the coating, impregnation or bond occurs in spaced zones, or over an area which is substantially less than the total area of the composite web, or is of a different character in different areas of the web.

(1) Note. A patent for a product wherein a narrow tape is adhered over a line of stitching will be placed in this subclass.

SEE OR SEARCH THIS CLASS, SUBCLASS:

195+, for a patent to a similar product which does not include stitching.

104 This subclass is indented under subclass 103. Product wherein the coating, impregnation or bond is limited to the areas where the stitches penetrate the web and, optionally, the area immediately adjacent thereto.

105 This subclass is indented under subclass 98. Product including a plurality of layers or components wherein at least two of said layers or components include substantially parallel, narrow, elongated elements* (such as strands*, strips* or fibers*), with those of one layer or component being arranged at an angle to those of another.

SEE OR SEARCH THIS CLASS, SUBCLASS:

114, for a product in which the elongated elements in respective layers or com-

ponents are substantially parallel to each other.

188, for a product in which the longitudinal axis of a tubular element(s) of one layer or component is at an angle to the like axis of a tubular element(s) in a second layer or component.

106 This subclass is indented under subclass 105. Product which comprises layers or components of wood, wherein the elongated elements are fibers forming the natural grain of the wood, with the grain of one layer arranged at an angle to the grain of another layer.

(1) Note. This is the locus for sheets of plywood.

107 This subclass is indented under subclass 105. Product in which the elemental structures are strands* or strand-portions*.

(1) Note. A patent for a product comprising distinct layers of strands crossed and bonded at their junctions will be placed in this subclass, but where the angularly related strands are interengaged (e.g., interwoven, etc.) the patent will be placed in the subclass defining interengaged strands, etc. such as for example, subclasses 175+ and 196+, and Class 442, subclasses 181+, depending on the claimed features.

108 This subclass is indented under subclass 107. Product in which the Longitudinal axis of the strands or strand portion follows a curvilinear or multidirectional path.

SEE OR SEARCH THIS CLASS, SUBCLASS:

362, and 369+, for a rod, strand fiber or filament whose longitudinal axis follows a multidirectional or curvilinear path.

109 This subclass is indented under subclass 107. Product in which there is at least one layer of material in addition to the layers or components which contain the strands or strand portions in angular relation.

110 This subclass is indented under subclass 109. Product in which there are at least two such additional layers, at least one of which is positioned on each side of the two layers of components which contain the strands or strand-portions in angular relation.

111 This subclass is indented under subclass 110. Product which includes a layer or component of mechanically intertwined, intertangled, interwoven or interlooped strand or strand-portion.

112 This subclass is indented under subclass 107. Product wherein the trands or strand-portions are at an acute angle with respect to the longitudinal axis of the web.

113 This subclass is indented under subclass 105. Product in which the elemental structures are fibers.

114 This subclass is indented under subclass 98. Product including a plurality of layers or components having distinctly oriented elemental constituents (such as strands*, strips* or fibers*) all arranged in the same general direction.

SEE OR SEARCH THIS CLASS, SUBCLASS:

105+, for a product wherein the elemental constituents in some respective layers may be parallel to each other whereas those in other respective layer are in angular relation to each other.

298.1+, for a web or sheet product in which strands, strand-portions or strips are not mechanically interengaged, but are parallel to one another.

115 This subclass is indented under subclass 98. Product having a plurality of strand-portions* or strand* loops extending freely in individual or grouped arrangement from an edge of the web, sheet or component.

(1) Note. Excluded are fringed manufactures which are the result merely of a simple textile fabrication, such as weaving or braiding.For placement in this subclass, a patent must be directed to a product whose manufacture transcends

the function of the textile producing apparatus (such as a loom or a knitting machine).

SEE OR SEARCH CLASS:
112, Sewing, subclass 409 for a web having a fringe secured thereto by sewing.
139, Textiles: Weaving, subclass 385 for a woven fabric wherein loose unwoven ends of the constituent strands form a fringe.

116 This subclass is indented under subclass 98. Product comprising a layer or component including either discrete elements (e.g., tubular constituents) or components which form or cooperate to form, cavities the longitudinal axes of which are at an angle to the plane of the web or sheet.

(1) Note. An integral layer (e.g., molded or apertured layer) including curvilinear or polygonal through openings therein is not considered to fall within the definition of this subclass. See particularly subclasses 131+ below.

SEE OR SEARCH THIS CLASS, SUBCLASS:
131+, for a web or sheet embodying an apertured component (e.g. layer with through openings, expanded metal, etc.) and particularly indented subclasses 132+ where such component comprises struck-out portions.
156+, for a web or sheet embodying a component of varying thickness (e.g., layer with open cavities) and especially subclass 161 for such component cooperating with a second component to form inter-laminar spaces.
174+, for a web or sheet embodying a nonplanar component and especially subclasses 178 and 180 where such component cooperates with a second component to form closed cells.
188, for a web or sheet including a longitudinally or transversely extending tubular cavity or cell.
593, for corresponding metallic* honeycomb stock-material*.

SEE OR SEARCH CLASS:
52, Static Structures (e.g., Buildings), subclasses 783.1+ for a sandwich or hollow panel having a discrete inter-laminar fastener, and subclass 60 for a honeycomb-like layer not having mechanical connecting means between components.

117 This subclass is indented under subclass 116. Product in which the cavities contain a material other than the atmosphere.

(1) Note. The cells need not be completely filled with the material. For example a coiled piece of foil within the cell is sufficient to qualify for this subclass.

SEE OR SEARCH THIS CLASS, SUBCLASS:
69, for a product comprising a sheet and cover therefor, the space therebetween being filled with a gas other than air.

118 This subclass is indented under subclass 116. Product in which the cavities are bounded by a continuous six sided wall.

119 This subclass is indented under subclass 98. Product having one or more components or sheets disposed with nonthickness surfaces* thereof at right angles to a nonthickness surface* of the composite product and nonintegral therewith.

(1) Note. A patent for a product comprising a plurality of relatively narrow sheets or components assembled with their respective nonthickness surfaces in face-to-face contact and their edges forming the nonthickness surfaces of the composite web or sheet will be included in this subclass.

(2) Note. A patent directed to a product wherein the components lie in parallel planes which are at an acute angle to the nonthickness surfaces of the composite product will be placed in subclass 112.

(3) Note. A patent directed to a product comprising a component having a portion integral with and disposed perpen-

dicular to a second portion (e.g., L-shaped, channel shaped, etc.) will be placed in subclasses 121+ on the basis of a particular edge feature.

SEE OR SEARCH THIS CLASS, SUBCLASS:

116+, for a product including sheets or components disposed perpendicular to the plane thereof where said sheets or components form or cooperate to form a honeycomb layer.

120 This subclass is indented under subclass 119. Product in which the component or sheet is not at the edge of the base web or sheet but is disposed inwardly toward the center.

121 This subclass is indented under subclass 98. Product wherein a portion if the web or sheet, or of a component thereof, is turned out of the plane of the web or sheet along a longitudinal axis thereof and at a longitudinally extending marginal portion of the web or sheet.

(1) Note. A corrugated web or sheet comprising a corrugation pattern which involves a fold at an edge thereof will be placed in subclass 179*.

SEE OR SEARCH THIS CLASS, SUBCLASS:

157, for a web or component having an integral nonfolded edge thicker than the body of the web or component.

174+, for a nonplanar layer or component in general.

176, for a similar product comprising a folded strand-type fabric, cloth or textile.

179+, for a longitudinally corrugated web or sheet wherein the corrugation pattern involves a fold at an edge thereof; and see (1) Note above.

SEE OR SEARCH CLASS:

160, Flexible or Portable Closure, Partition, or Panel, subclasses 383+ for a web or sheet with a folded edge to accommodate fastening to an elongated element (e.g., frame, etc.) and especially subclass 387 for a hem in such a web or sheet.

122 This subclass is indented under subclass 121. Product wherein the folded component is a relatively narrow trough-shaped strip with the walls thereof embracing a longitudinal edge of at least one other component of the web or sheet.

SEE OR SEARCH THIS CLASS, SUBCLASS:

85+, for a product comprising a pile type surface in a U-shaped or channel shaped article.

358, for a strand type product having a channel shape.

SEE OR SEARCH CLASS:

112, Sewing, subclass 419 for a sewn channel-shaped binding.

123 This subclass is indented under subclass 121. Product wherein a strand* or strand-portion* lies between layers of the edge-folded web or sheet.

SEE OR SEARCH CLASS:

52, Static Structures (e.g., Buildings), subclasses 716.1+ for molding trim combined with attaching means.

112, Sewing, subclass 147 for a similar sewn product.

124 This subclass is indented under subclass 121. Product wherein the web or sheet is composite* and a longitudinally extending portion of a surface component is turned back upon itself or around an edge or a second component of the web.

SEE OR SEARCH CLASS:

112, Sewing, subclasses 147+ for a sewn webor sheet including a reverse fold at an edge.

125 This subclass is indented under subclass 124. Product in which the folded portion of the surface component has a free end enclosed within the body of the web out of contact with the exterior surface of any face layer.

126 This subclass is indented under subclass 124. Product wherein the surface component has either an acute or reverse fold along each of the opposed edges of the product.

SEE OR SEARCH THIS CLASS, SUBCLASS:

68+, for a sheet including a distinct layer of material enclosing all the edges and at least one nonthickness surface* of the sheet.

127 This subclass is indented under subclass 126. Product in which the reversely folded component is part of an enveloping means which forms the complete (or substantially complete) exterior of the web or sheet.

SEE OR SEARCH THIS CLASS, SUBCLASS:

68+, for a sheet having another distinct layer of material enclosing all the edges and at least one nonthickness surface of the sheet.

364+, for a strand comprising a core with an annular cover.

128 This subclass is indented under subclass 127. Product wherein the reversely folded component, per se, constitutes the entire enveloping means.

129 This subclass is indented under subclass 128. Product wherein free ends of the enveloping component lie in adjacent edge-to-edge contact or overlie one another.

130 This subclass is indented under subclass 121. Product wherein the turned out portion has particular structure (e.g., perforations, shape, serrations, etc.) or is dimensionally related to an exterior of the composite web or sheet component.

131 This subclass is indented under subclass 98. Product wherein the web or sheet or a component thereof, has one or more discrete through openings with the peripheral wall or walls of each opening defined by either a line or closed loop passing through the thickness of the component while following a unidirectional or multidirectional rectilinar path.

(1) Note. Reticulation (a form of apertures), may be mechanically or chemically produced (e.g., spinning a polymer in a net-like or web-like form, etc.).

(2) Note. The periphery of said loop may vary in size while passing through the component or the loop may pass through the component edgewise to form a slit.

(3) Note. A product including a component with openings the walls of which are defined by loops following a nonrectilinear (e.g., tortuous or haphazard, etc.) path through the thickness dimension of the component will be placed in subclasses 304+.

(4) Note. A patent wherein the apertures are solely for the purpose of passing a stitching thread through the web will be found in Class 112, Sewing, subclasses 402+ and especially subclass 591.

(5) Note. Woven, knitted or netted products are excluded under this definition of aperture, unless it is the intent that apertures be specifically provided, other than the usual and normal openings between the strands due to the nature of the weave, knit or mesh. Generally a woven, knitted or netted product encompasses strands which lie above and below other strands in the same layer. Apertures must be deliberately made to meet the definition of this subclass.

SEE OR SEARCH THIS CLASS, SUBCLASS:

17, for artificial turf having apertures in the base or substrate to permit draining.

43, for a web or sheet or layer which is perforated or apertured to permit separation of portions thereof at these weakened sections.

119, for a grill-like product comprising perpendicularly disposed components and intersecting strips*.

155, for a stock material with minute crevices extending thereinto, but not therethrough.

188, for stock material including a longitudinal or a transverse tubular cavity or cell*.

304+, for a product including a porous component.

596, for corresponding metallic* stock-material*.

SEE OR SEARCH CLASS:

52, Static Structures (e.g., Buildings), subclasses 633+ for an "openwork" product for that class, and especially subclass 660 for a "lattice" type product (grating, foraminous reinforcement, grille) primarily of use as a rigid component of a building structure and structurally similar structures of more general application. See the search notes in subclass 660 for other classes providing for fabric or lattice openwork structures.

55, Gas Separation, subclass 525 for an apertured product with specific structure to facilitate gas separation.

160, Flexible or Portable Closure, Partition, or Panel, subclasses 385+ for stock material having an apertured edge disclosed for attachment to an elongated support.

181, Acoustics, appropriate subclasses for a web or sheet with either internal or external structure wherein said structure is disclosed to be provided for the purpose of deadening or amplifying sound, and especially subclasses 284+ where said structure is provided for the purpose of muffling or filtering sound.

277, Seal for a Joint or Juncture, for a packing element comprising a web or sheet having (a) a definite peripheral shape, (b) a modified service opening, or (c) a configuration or feature particularly adapting the element as a packing, subclasses 935+ for a seal made of a particular material.

132 This subclass is indented under subclass 131. Product wherein the web or sheet, or a component thereof, has one or more portions which project or protrude from a nonthickness surface of the component and form at least a part of the periphery of a through opening therein.

133 This subclass is indented under subclass 132. Product in which the component with struck-out portions is within a layer or the struck-out portions of said component extend into, interlock with, enmesh or clench an adjacent layer.

134 This subclass is indented under subclass 131. Product in which the wall defining a through opening is of a shape other than a continuous curved line at a constant distance from a central point.

135 This subclass is indented under subclass 134. Product in which the aperture is shaped as (1) a four sided closed figure in which two opposite angles are acute and the other two are obtuse or (2) a six sided closed figure.

136 This subclass is indented under subclass 134. Product in which the aperture is elongated in relation to its width.

137 This subclass is indented under subclass 131. Product wherein the web or wheel comprises a plurality of components of which at least one is apertured.

138 This subclass is indented under subclass 137. Product containing at least one apertured component and one imperforate component.

139 This subclass is indented under subclass 138. Product wherein a protruding portion of one component enters into and engages the periphery of an aperture in another component.

SEE OR SEARCH THIS CLASS, SUBCLASS:

77+, for a panel of sheet attached to a surface of a base sheet or web and having a portion extending into an aperture in the base.

222, for a product embodying a component threaded through spaced apertures in another component.

140 This subclass is indented under subclass 139. Product wherein the apertured component is disclosed between two components with portions of each of said two components entering the aperture or wherein the apertured component is completely embedded within the thickness dimension of a layer.

141 This subclass is indented under subclass 98. Product in which an area of the web or sheet has a structure which extends substantially across the area but which is made up of pits, depressions, furrows or other such irregulari-

ties of no regular design or pattern, so as to give the surface a design or pattern, so as to give the surface a desired feel or texture and which area may be (1) exposed or (2) covered with a layer designed to permit light to pass therethrough and render the area visible or (3) covered with a material which is opaque but designed to protect the area from injury.

(1) Note. The difference between this subclass and 156+ is that in the latter, the layer is desired to vary in thickness, while in the present subclass there is no substantial variation in thickness except merely that necessitated by virtue of the surface irregularities.

(2) Note. Excluded from this and the indented subclasses are products which are knitted, braided, woven, etc. The surface characteristics of such products are considered to be uniform and regular or patterned, not irregular, as required by subclasses 141+.

(3) Note. Excluded from this and the indented subclasses are products in which the textured surface is provided solely for bonding two layers to one another through the textured surface. This will be classified below on other features such as the compositions of the layers.

SEE OR SEARCH THIS CLASS, SUBCLASS:

85+, for a surface which is made up of looped filamentary material or free ended material extending from and integral with the surface of a web or sheet, resulting in a bristly, fuzzy or resilient surface.

156+, for a web or sheet in which a layer or component varies in thickness across its width or length.

142 This subclass is indented under subclass 141. Product comprising an additional layer over the textured or irregular surface which (1) permits the passage of light so as to make the surface visible, or (2) guards against marring or spoiling of the surface.

143 This subclass is indented under subclass 141. Product in which the irregularities comprise small pieces or granules of matter.

(1) Note. Included in this subclass are products which are used as roofing or siding on homes. To complete the search for such products the appropriate subclasses in Class 52, Static Structures (e.g., Buildings), should be considered.

SEE OR SEARCH CLASS:

52, Static Structures (e.g., Buildings), appropriate subclasses especially subclasses 518+ for shingles particularly provided for therein.

144 This subclass is indented under subclass 143. Product in which each of the pieces or granules is previously covered at least partially with a material before placing on the web or sheet.

145 This subclass is indented under subclass 144. Product in which the material contains the elements silicon in either the elemental or combined state.

146 This subclass is indented under subclass 143. Product in which the pieces or granules comprises a carbohydrate.

(1) Note. Flour, starch and cellulose are examples of carbohydrates which may be found in this subclass.

147 This subclass is indented under subclass 143. Product in which the pieces or granules comprise either a natural or synthetic resin or polymer.

(1) Note. Examples of the resins or polymers found herein are: natural rubber, polyamide (either natural or synthetic), polyethylene.

148 This subclass is indented under subclass 143. Product in which the pieces or granules comprises either a metal in its elemental state or a compound of a metal.

149 This subclass is indented under subclass 143. Product in which the pieces or granules comprises the element silicon in either its uncombined or compound state.

150 This subclass is indented under subclass 149. Product in which the silicon containing bits or granules are in the form of sand, clay or comminuted ordinary rock or that known as slate.

151 This subclass is indented under subclass 141. Product in which the surface irregularities resemble or are made to be similar to the arrangement of fibers*, particles* or layers forming the natural lines in lumber or natural animal skin.

SEE OR SEARCH THIS CLASS, SUBCLASS:

473, for a laminated product comprising a layer of natural animal skin or membrane.

904, an art collection for an artificial leather product.

152 This subclass is indented under subclass 141. Product which contains furrows, ridges, nonrectilinear wrinkles, creases or crinkles.

153 This subclass is indented under subclass 152. Product wherein the web, sheet or component, is made of paper.

SEE OR SEARCH THIS CLASS, SUBCLASS:

155, for stock material which is cracked, crazed or slit and which may be made of paper.

154 This subclass is indented under subclass 153. Product wherein there are a plurality of such paper components which are ridged, crinkled, creased or creped.

155 This subclass is indented under subclass 141. Product in which the web, sheet or component contains crevices of relatively small lateral dimension extending thereinto but not therethrough.

(1) Note. A slit extending completely through a layer or component is considered an aperture and a disclosure of such product will be found in subclasses 131+ above.

SEE OR SEARCH CLASS:

427, Coating Processes, subclass 90 for a wrinkled or crackled coating.

156 This subclass is indented under subclass 98. Product wherein the distance between the nonthickness surfaces of a web or sheet or a component thereof, deviates from point to point along the transverse or longitudinal axis of the product.

(1) Note. As implied in the subclass definition, variation in total thickness (or bulge) caused by overlapping components, is excluded from the concept of this subclass. See search notes below to subclasses 88, 174+ and 189.

(2) Note. A patent directed to a component with minute surface irregularities in the form of very small pits or projections will be placed in subclasses 141+.

(3) Note. The presence of either a plain or countersunk through hole in a layer is not considered to provide a variation in thickness of an otherwise uniform thickness layer. See subclasses 131+.

(4) Note. Under the definition of this subclass, the sheet or web may be either single or plural layer.

SEE OR SEARCH THIS CLASS, SUBCLASS:

43, for a web or sheet which has a tear line or other weakened portion caused by a variation in thickness, to permit separation of the sheet or web through its thickness.

77+, especially 78+ for a composite web or sheet, one layer of which is smaller than the other and also one layer of which may vary in thickness.

88+, for a “sculptured” pile surface of varying height.

121+, for a web whose thickness varies by virtue of a fold at its edge.

139+, for a variation in thickness in the form of a projection which enters an aperture in a mating component.

174+, for a product comprising a folded component in which pleats are formed by the folds.

189, for a composite web or sheet whose total thickness varies due to the overlapping of laterally noncoextensive components.

397+, for a rod or strand which varies in thickness.

SEE OR SEARCH CLASS:

15, Brushing, Scrubbing, and General Cleaning, subclasses 238+ for a floor mat including blade-like elements for cleaning purposes.

52, Static Structures (e.g., Buildings), subclasses 716.1+ for a rigid channel or trim member with a feature for attaching to an in situ erected type structure.

434, Education and Demonstration, subclasses 112+ for a reading device for the blind as an embossed product (i.e., Braille).

157 This subclass is indented under subclass 156. Product wherein the difference occurs only at or in the area adjacent, an edge of the web, sheet or component; or in which the thickness variation at or adjacent the edge differs substantially from that which exists over the remainder of the web, sheet or component.

SEE OR SEARCH THIS CLASS, SUBCLASS:

177, for similar marginal nonuniformity in nonplanar uniform-thickness material.

192, for a product with marginal characteristic of more general nature.

158 This subclass is indented under subclass 156. Product including a component which contains (1) open or interconnected voids throughout which have been made by means of a gas or other agent (blowing agent or heat, etc.) enlarging the voids or the material of the component so as to occupy more space or (2) closed cavities (empty or filled).

159 This subclass is indented under subclass 158. Product which comprises a compound of relatively large molecules and high molecular weight, whose molecules consist of recurring smaller chain structural units.

(1) Note. Examples of polymers under this definition are: natural or synthetic rubber, polyester, polyamide, etc.

160 This subclass is indented under subclass 159. Product in which the polymer comprises poly (amido ester) or polyisocyanate, commonly known as polyurethane.

161 This subclass is indented under subclass 156. Product wherein the component of nonuniform thickness has a nonplanar surface and a second component is in continuous interfacial contact with said surface.

162 This subclass is indented under subclass 161. Product in which the opposite surface of the nonuniform thickness component is also nonplanar and a third component is in continuous interfacial contact with such opposite surface.

163 This subclass is indented under subclass 161. Product in which the nonplanar face of the nonuniform thickness component is in the form of ridges and/or furrows of substantial length and width extending along or across the component and in mutual parallelism.

164 This subclass is indented under subclass 161. Product in which one of the components comprises a free metal or a compound thereof.

(1) Note. Excluded from this subclass are glass*, asbestos, porcelain*, ceramic*, etc., which, though containing a metal are not ordinarily included therewith.

165 This subclass is indented under subclass 161. Product in which one of the components contains a natural rubber or a cellusosic* material in its natural or modified state.

166 This subclass is indented under subclass 156. Product, wherein a nonplanar surface of a variable thickness layer comes into contact with an adjacent layer (or a component thereof) in such a manner as to define therebetween individual or interconnected three-dimensional zones, either separate or interconnected.

(1) Note. The spaces may be empty or occupied, in whole or in part, by a filler material.

SEE OR SEARCH THIS CLASS, SUBCLASS:

158, for a product in which the interlaminar spaces take the form of cells* in a foamed material.

178, for a web or sheet embodying a component of a nonplanar uniform-thickness material which forms or cooperates with an adjacent component to form cells*.

182+, and especially subclass 186 for web or sheet embodying a nonplanar uniform-thickness component of sinuous wave form secured to an adjacent planar component so as to provide spaces therebetween.

188, for a longitudinal or transverse cavity* or cell* within a layer.

SEE OR SEARCH CLASS:

5, Beds, subclasses 449+ and particularly subclasses 455+ for a compartmented air mattress.

167 This subclass is indented under subclass 156. Product in which the variation in thickness occurs in the form of parallel ridges and/or furrows of substantial length and width extending along or across the product.

SEE OR SEARCH THIS CLASS, SUBCLASS:

30, for a striated surface which exhibits in irridescent effect.

163, for a similar product having a component of nonplanar surface with a nonplanar and a second component is in continuous interfacial contact with said surface and in which there are also ridges or furrows extending along or across the component.

168 This subclass is indented under subclass 167. Product containing small bits or pieces of solid matter.

169 This subclass is indented under subclass 167. Product in which the ridges and/or furrows lie at an acute angle to the longitudinal axis of the web or sheet.

170 This subclass is indented under subclass 156. Product wherein the mass per unit volume of the web, sheet, or component also varies.

(1) Note. This density usually varies with the thickness of such product as in a layer with compressed zones.

171 This subclass is indented under subclass 170. Product comprising a component which consists of or includes fibers.

172 This subclass is indented under subclass 156. Product comprising at least two layers.

173 This subclass is indented under subclass 172. Product in which an outer surface of the composite* sheet or web has dents or depressions and there is an extraneous material in at least one such dent or depression, lying beneath the topmost rise of the walls defining such dent or depression.

174 This subclass is indented under subclass 98. Product wherein the web or sheet, or a component thereof, has nonthickness surfaces* which are (1) defined other than by two parallel planes and (2) equidistantly spaced at all points.

(1) Note. Excluded from this definition of nonplanar is a roll or coil of material; the product itself must be nonplanar, not the manner of packaging or storing.

SEE OR SEARCH THIS CLASS, SUBCLASS:

121+, for a product wherein the nonplanarity is in the form of a fold at a longitudinal edge of the web.

161+, for a nonplanar uniform thickness component following the nonplanar surface of a layer or component of varying thickness.

SEE OR SEARCH CLASS:

139, Textiles: Weaving, subclass 386 for a nonplanar, woven, web or sheet product of a process provided for in that class.

162, Paper Making and Fiber Liberation, subclasses 109+ for a nonuniform, irregular or configured product of a paper making process.

175 This subclass is indented under subclass 174. Product comprising a layer, or component consisting of strands*, strand*portions* or relatively narrow ribbon like elements, mechanically interwoven, intertangled, intertwined or interlooped.

(1) Note. This defines a textile or other woven or knitted material which is then treated to form embossments or other nonplanarities, but retaining the uniform thickness.

SEE OR SEARCH THIS CLASS, SUBCLASS:

152+, for a product which does not consist of a weave or knit fabric, but which has numerous irregular, nonrectilinear ridges or creases.

176 This subclass is indented under subclass 175. Product wherein the nonplanarity comprises integral substantially flat portions of the layer or component disposed in face abutting relation or in substantially equi-distantly spaced relation.

SEE OR SEARCH THIS CLASS, SUBCLASS:

181, for a nonstrand web, sheet or layer embodying a component with pleats or otherwise parallel adjacent folds.

SEE OR SEARCH CLASS:

112, Sewing, subclass 427 for a pleated and sewn web.

177 This subclass is indented under subclass 174. Product in which the nonplanarity occurs only at or in the area adjacent, an edge portion of the total product; or in which the nonplanarity at or adjacent the edge of the product differs substantially from that which exists over the remainder thereof.

SEE OR SEARCH THIS CLASS, SUBCLASS:

121+, for a product wherein the marginal nonplanarity is in the form of a fold.

178 This subclass is indented under subclass 174. Product wherein the nonplanar component (1) is so shaped as to form closed compartments, either vacant or occupied, the walls of which are an integral part of said nonplanar component or (2) cooperates with an adjacent component to produce closed compartments, which are either vacant or occupied by a material not integral with either component.

SEE OR SEARCH THIS CLASS, SUBCLASS:

72+, for a sheet including a cover or casing in which there are elements which cooperate to form cells*.

166, for spaces between layers, one of which varies in thickness.

188, for a product which includes a longitudinal or transverse cavity* or cell*, in general.

304+, for a cellular layer, in general.

179 This subclass is indented under subclass 174. Product wherein there is a plurality of discrete deviations of the nonthickness surfaces* of the web, sheet or component from the parallel plane condition in a repetitive pattern and said deviations are arranged in one or more rows or are elongated and extend generally in the same direction.

180 This subclass is indented under subclass 179. Product wherein the Nonplanarity is in the form of a regular geometrical pattern of polygonal protuberances and/or depressions, each having a centrally located flat land portion.

181 This subclass is indented under subclass 179. Product wherein the deviations include planar portions which are either substantially in face contact or spaced from one another in mutual parallelism.

SEE OR SEARCH THIS CLASS, SUBCLASS:

102+, for a pleated product including stitching and coating, impregnation, or adhesion.

175+, for a pleated strand-type fabric.

SEE OR SEARCH CLASS:

112, Sewing, subclass 427 for a sewn web or sheet which is pleated or tucked.

182 This subclass is indented under subclass 179. Product wherein the nonplanarities are elongated and are arranged to extend generally in the same direction.

SEE OR SEARCH THIS CLASS, SUBCLASS:

163, and 167, for a product embodying a component of varying thickness and including ribs and/or grooves.

178, for a product wherein a ribbed, uniform-thickness, component forms or cooperates to form closed cells*.

183 This subclass is indented under subclass 182. Product wherein the peaks of the corrugations are indented at spaced zones therealong or wherein there are two series of corrugations in one layer with those of one series crossing or extending between and at an angle to those of the second series.

SEE OR SEARCH THIS CLASS, SUBCLASS:

178, for a product wherein the deformations of the peaks of the corrugations engage an adjacent layer and thereby form closed cells*.

180, for a product wherein crossing ribs or grooves form a waffle pattern.

185, for a product wherein ribs or grooves in respective components of a composite web cross in plan projection.

184 This subclass is indented under subclass 182. Product which includes two or more corrugated components.

SEE OR SEARCH THIS CLASS, SUBCLASS:

178, for plural corrugated components cooperating to form cells*.

185 This subclass is indented under subclass 184. Product wherein the corrugations of one component cross the corrugations of a subjacent or superjacent component at an angle.

186 This subclass is indented under subclass 184. Product having in addition another component each of whose nonthickness surfaces* lies in a single plane (i.e., planar).

(1) Note. The planar component may be bonded to either or both corrugated components.

187 This subclass is indented under subclass 174. Product wherein the nonplanarity is in the form of a figured pattern or a presentation of information.

SEE OR SEARCH THIS CLASS, SUBCLASS:

79, for a composite sheet* in which one layer is smaller than the other and has a decorative outline.

SEE OR SEARCH CLASS:

434, Education and Demonstration, subclasses 112+ for reading devices for the blind in the form of embossed sheets (Braille writing).

188 This subclass is indented under subclass 98. Product wherein the web or sheet has one or more elongated hollow spaces of substantially uniform cross-section located between and lying with their axes substantially parallel to, the nonthickness surfaces* of the web or sheet and being either open or closed at their ends.

SEE OR SEARCH THIS CLASS, SUBCLASS:

72+, for a sheet including a cover or casing and in which there are elements* which cooperate to form cells*.

116+, for a honeycomb-like web or sheet wherein the cavities or cells are arranged with their axes at an angle to the nonthickness surface of the structure.

166, for a product including a component of varying thickness with interlaminar spaces.

178, for cells* formed by one or more nonplanar components.

181, for tubular cavities* formed by two components, at least one of which has parallel folds.

184+, for a similar structure wherein the cavities* or cells* are formed by a wave-form component cooperating with another component.

304+, for a composite web or sheet including a cellular component in which the

cell* do not lie longitudinally or transversely of the web or sheet.

338, for a single layer product including structurally defined cells* which do not lie longitudinally or transversely of the nonthickness surface*.

357+, for a mass including structurally defined cells* of any shape.

SEE OR SEARCH CLASS:

138, Pipes and Tubular Conduits, appropriate subclass for a tubular product of specific structure as provided for therein and see the definition of this Class 428, section VI B, reference to Class 138.

189 This subclass is indented under subclass 98. Product wherein at least one side edge of a layer* or component* of a composite web is laterally offset (in either spaced or overlapping relation) relative to a corresponding edge of a second layer* or component* of the product.

SEE OR SEARCH THIS CLASS, SUBCLASS:

44+, for a two dimensionally sectional layer in which two components are laterally noncoextensive.

54+, for a composite layer comprising at least three parts in which each part has a longitudinal extent less than the longest dimension of the layer.

57+, for webs and/or sheets joined in edge to edge relation to form a sectional web or sheet.

188, for a product including components, separated by elongated spacers to form a longitudinal or transverse cavity* therebetween.

SEE OR SEARCH CLASS:

160, Flexible or Portable Closure, Partition, or Panel, subclasses 123+ for plural hanging or drape type devices hung from a single support in side by side overlapping relation, subclasses 130+ for interconnected flexible strips, slats and/or panels and also for a plurality of rigid strips, slats and/or panels which are connected for relative motion and form a single unit, and subclasses 330+ for a sectional fabric which hangs suspended (e.g., drape, etc.).

190 This subclass is indented under subclass 189. Product in which one of the components is a cloth*, fabric* or textile*.

191 This subclass is indented under subclass 189. Product in which one of the components is a cellulosic* material in any of its natural or chemically modified forms (e.g., wood, paper, rayon*, viscose*, etc.).

192 This subclass is indented under subclass 98. Product having structure at an edge thereof or in the area adjacent an edge thereof which differs from that of the remainder of the web.

SEE OR SEARCH THIS CLASS, SUBCLASS:

44+, for a two dimensional sectional layer having perimeter or edge structure.

66.7, for a circular sheet having defined edge structure.

81+, for a sheet having complete perimeter structure or corner structure.

88, for a pile or nap type surface component having particular edge structure.

115, for a web or sheet having a fringed edge.

121+, for a web or sheet having a folded edge.

157, for a web or sheet having a differential nonuniformity in thickness at a margin.

177, for a web or sheet of nonplanar uniform thickness having a differential nonplanarity at a margin.

SEE OR SEARCH CLASS:

427, Coating Processes, subclasses 284+ for a process of coating a product along an edge or border.

193 This subclass is indented under subclass 192. Product comprising a layer of material having strand*, strand-portions* or relatively narrow ribbon like elements mechanically intertangled, interwoven, intertwined or interlooped.

(1) Note. A product of this type of mechanical interengagement of such elements is commonly known as a weave, knit or mesh.

194 This subclass is indented under subclass 192. Product in which the structure at the edge comprises a saturation of fluid thereinto or an adhesion to another component, which saturation or adhesion is not continuous along the edge.

SEE OR SEARCH THIS CLASS, SUBCLASS:

189+, for a web or sheet having at the edge thereof a continuous and longitudinally coextensive coating.

195.1 Discontinuous or differential coating, impregnation or bond (e.g., artwork, printing, retouched photograph, etc.):

This subclass is indented under subclass 98. Subject matter for product wherein at least one component or layer has spaced areas, substantially less than the total area of the involved surface of the layer or component, which are either, (1) faced or saturated with fluent or plastic material or (2) joined to other portions of the layer or components or to another layer or component by adhesion or cohesion; or wherein the facing, saturation or junctures set forth in clauses (1) and (2) above is of a different character (e.g., strong bond next to weak bond) in different areas of the Web or sheet.

(1) Note. A design or printed matter or indicia of any sort will be considered as a discontinuous coating for this subclass unless clearly disclosed as uniform.

SEE OR SEARCH THIS CLASS, SUBCLASS:

103+, for a composite sheet or web which includes a differential or discontinuous coating or impregnation or bond and a zone or stitching.

178, for a nonplanar layer or component bonded to a planar component at discrete zones.

187, for a nonplanar uniform thickness material which has a design or other indicia thereon.

189, for a web or sheet including laterally non-coextensive components wherein said components may constitute a discontinuous or differential coating or impregnation.

411+, for a laminate including one component having a continuous and coextensive surface coating, impregnation or bond.

SEE OR SEARCH CLASS:

33, Geometrical Instruments, subclass 12 for a fabric with pattern lines thereon.

40, Card, Picture, or Sign Exhibiting, subclass 427 for artwork, or a photograph having an enhanced visual effect.

101, Printing, appropriate subclasses, especially subclass 368 for a product having a nonuniform coating thereon when disclosed solely for use as a printing member. See also definition of this Class 428 the reference to Class 101 under "LINES WITH OTHER CLASSES Part A. INTERMEDIATE-ARTICLES Section 2. Blanks, etc".

427, Coating Processes, subclass 1 for a process of providing a print, impression or pattern of animal skin, (e.g., human fingerprints, etc.) on a base and subclass 256 for the process of producing a nonuniform coating on a substrate.

430, Radiation Imagery Chemistry: Process, Composition, or Product Thereof, subclass 9 for a chemically defined photograph.

434, Education and Demonstration, subclass 81 for inventions in teaching or demonstrating visual arts and crafts.

196 Including layer of mechanically interengaged strands, strand-portions or strand-like strips:

This subclass is indented under subclass 195.1. Subject matter for product in which at least one layer comprises strands*, strand-portion* or relatively narrow ribbon like elements which are mechanically intertwined, intertangled, interwoven or interlooped.

SEE OR SEARCH THIS CLASS, SUBCLASS:

175+, for a similar product in which the web or sheet or layer or component thereof has nonthickness surfaces which are defined other than by two parallel planes and are equidistant at all points.

192, for a similar product which has particular structure at an edges or adjacent thereto which is different from that of the remainder of the web.

SEE OR SEARCH CLASS:
152, Resilient Tires and Wheels, especially subclasses 548+ for a tire carcass including a layer of noninterengaged strands.
442, Fabric (Woven, Knitted, or Non-woven Textile or Cloth, etc.), subclasses 181+ generally for a product having mechanically interengaged strand and other features.
474, Endless Belt Power Transmission Systems or Components, particularly subclasses 237+ for a friction drive belt, or for stock material disclosed solely for use as a drive belt, which may include noninterengaged strands, such as for reinforcing elements, in the body of the belt.

197 This subclass is indented under subclass 196. Product in which the strand type component comprises interlocked loops of strand material and the strand at spaced areas is adhered or cohered to itself or to another strand forming the loop.

SEE OR SEARCH THIS CLASS, SUBCLASS:
196, for a web or sheet or component of interengaged strands (other than knitted) in which the strands may be adhered to others in the same layer, or to another adjacent component.
198, for a web or sheet or layer adhered to another component or web or sheet at spaced areas.

198 Spot bonds connect components:
This subclass is indented under subclass 195.1. Subject matter for product in which components are joined to each other in discrete spaced areas of relatively small extent.

199 Including developable image or soluble portion in coating or impregnation (e.g., safety paper, etc.):
This subclass is indented under subclass 195.1. Subject matter for product in which the discontinuous or differential coating or impregnation comprises (1) normally nonvisible indicia or (2) portions which are dissolvable and , in both (1) and (2) above, when treated in other than normal use, would become visible.

(1) Note. This is the locus for so-called safety or bank paper, which, when an erasure or eradication is attempted, clearly indicates such attempt.

SEE OR SEARCH THIS CLASS, SUBCLASS:
29, for an article having a latent image which is visible or barely visible and must be treated to become more visible on intended use.
915, and 916, for cross reference art collections of documents which are treated to indicate alterations or erasures or other fraud attempts.

200 With heat sealable or heat releasable adhesive layer:
This subclass is indented under subclass 195.1. Subject matter for product including a layer which is activated by an increased temperature to adhere to another surface or to be removed from cohesion with an adjacent component.

201 Intermediate layer is discontinuous or differential:
This subclass is indented under subclass 195.1. Subject matter for product in which the component or layer having the spaced areas of saturation or facing lies between and adjacent to other layers or components.

202 This subclass is indented under subclass 201. Product in which one of the adjacent layers lies on the outermost surface of the web or sheet and is removable from the web or sheet or is so made as to prevent adhesion to a surface in contact therewith.

SEE OR SEARCH THIS CLASS, SUBCLASS:
200, for a product which must be heated in order to destroy the adhesion or cohesion of a layer to an adjacent layer or component.

203 This subclass is indented under subclass 201. Product in which one of the adjacent layers lies on the outermost surface of the web or sheet and permits light to pass therethrough.

(1) Note. The translucent layer is usually for the purpose of protecting or viewing the layer there-beneath.

204 This subclass is indented under subclass 203. Product in which the middle layer has small particles of solid material in its facing or saturation.

(1) Note. Many of the patents in this subclass have a design or image made with particles* of colored material and are covered with a transparent layer to permit viewing of such design.

(2) Note. The material may be white, black or any color.

205 This subclass is indented under subclass 203. Product in which the translucent layer include natural oil*, a wax* or waxy material*, a resin*, gum* or the polyamides* known as glue or gelatine.

206 **Including particulate material:**
This subclass is indented under subclass 195.1. Product which includes small particles* of solid matter.

207 This subclass is indented under subclass 206. Product in which the small particles* comprise coloring material.

(1) Note. The coloring material may be white, black or any color.

(2) Note. The particles* themselves may be the coloring matter (i.e., pigment) or the particles may have a dye coating thereon.

208 This subclass is indented under subclass 206. Product in which the small grains or bits of matter include a free metal* or a natural, mined compound.

209 **Including metal layer:**
This subclass is indented under subclass 195.1. Subject matter for product which includes a layer of free metal*.

210 **Including ceramic, glass, porcelain or quartz layer:**
This subclass is indented under subclass 195.1. Subject matter for product in which one of the layers contains fused clay* (ceramic*), a fine, white, translucent hard earthenware (porcelain*), or the fused mixture of the silicates of the alkali and alkaline earth or heavy metals (glass*).

(1) Note. Included under this definition of glass is glassy or crystalline silica or quartz*.

211.1 **Including paper layer:**
This subclass is indented under subclass 195.1. Subject matter for product in which one of the layers contains fibers* of paper*.

212 This subclass is indented under subclass 98. Product wherein two components of a web, sheet or layer possess the same physical property but in different amount or intensity and are so claimed.

(1) Note. For purposes of this subclass porosity or cellularity is not considered to be a physical characteristic; a product having plural components which differ in this characteristic will be found in subclasses 304+ see search note below.

(2) Note. For purposes of this subclass, a component in which the physical characteristics of an element (e.g., fiber*, filament*, particle*, etc.) is defined and it is this characteristic which varies in another component, will not be included in this subclass, but will be found below, see subclasses 292.1+ and 323+.

(3) Note. For purposes of this subclass and its indents, if a composite sheet is claimed as having the same physical characteristic (e.g., thickness, etc.) this is considered to be a special case of "differing" degree and the patent will be classified in this group of subclasses.

SEE OR SEARCH THIS CLASS, SUBCLASS:

292.1+, for a composite web or sheet in which at least one component has structurally defined fibers which may be compared to the characteristics of the fibers in another component.

304+, for a web sheet layer of or containing components differing in degree of porosity.

323+, for a web, sheet layer of or containing components which differ in variations of structurally defined particles.

332+, for a composite web or sheet in which the thickness of only one component is specified.

213 This subclass is indented under subclass 212. Product in which the physical property relates to thickness of the components.

214 This subclass is indented under subclass 213. Product in which the components are layers which act as bonds between two other layers.

215 This subclass is indented under subclass 213. Product in which absolute dimensions of two components are specified.

SEE OR SEARCH THIS CLASS, SUBCLASS:

213, for a product in which the relative thickness, or the ratio of the thickness, between two components is specified.

216 This subclass is indented under subclass 215. Product in which the thickness of each layer or components as specified does not excess 5 mils or the equivalent.

217 This subclass is indented under subclass 212. Product in which the physical property relates to resistance to deformation or fracture by pressure.

(1) Note. Included in this subclass are recitations relating to units of measurement of hardness (e.g., Brinnell hardness, etc.).

218 This subclass is indented under subclass 212. Product in which the physical property relates to a weight per unit volume of the component or the degree of compactness thereof.

219 This subclass is indented under subclass 98. Product in which a physical characteristic of the overall web or sheet is recited in terms of its weight per unit area of the product.

(1) Note. Since weight per unit area and a physical dimension are related, cross-referencing between this subclass and the succeeding one has been minimized. Both subclasses should be considered in the search.

SEE OR SEARCH THIS CLASS, SUBCLASS:

220, for a product in which the absolute dimension of the overall product is specified.

220 This subclass is indented under subclass 98. Product wherein the size of the overall web or sheet is claimed as an absolute dimension.

(1) Note. The difference between this subclass and 332+ is that in the latter the size of only a component* or layer* is claimed*, whereas in this subclass the size of the overall web or sheet is recited.

(2) Note. The preceding subclass 219 contains many patents in which the physical dimension of an overall web or sheet is disclosed and/or claimed. To complete the search for such a feature, the preceding subclass must be considered since the cross-referencing between the two subclasses has been minimized.

SEE OR SEARCH THIS CLASS, SUBCLASS:

212+, for a composite* web or sheet wherein the size of one component* relative to another is claimed.

219, for a sheet or web in which the physical dimension is indicated in a weight per unit area but in which an absolute dimension may be disclosed and/or claimed.

332+, for a composite* web or sheet in which the absolute size of an element* or component* is claimed.

357+, for a rod*, strand*, fiber*, filament*, particle* or other element* claimed as having a specific dimension.

SEE OR SEARCH CLASS:

52, Static Structures (e.g., Buildings), appropriate subclasses, for a modular building panel with a physical configuration for interengagement with an abutting panel.

221 This subclass is indented under the class definition. Product comprising a single or plural layer* web*, or sheet* which contains a component* or an element* (e.g., fiber*, strand*, filament*, particle*, etc.), the size or some structural feature of which is claimed, (e.g., orientation or relation to another element or component, bond at intersecting points, weave or knit, cellularity or porosity, etc.).

(1) Note. For purposes of this group of subclasses, a disclosed fabric, textile or cloth will be considered to be included under "structurally defined element or component".

SEE OR SEARCH THIS CLASS, SUBCLASS:

98+, for a web or sheet (single or plural layer) in which the web (1) has a particular overall shape, significant size or other particular configuration such as an edge feature or (2) the components are arranged in an orderly fashion relative to a surface of the product or (3) the product comprises plural layers with each layer thereof claimed as possessing a particular characteristic such as density or hardness or thickness or (4) the product includes a particular characteristic claimed in its relation to a surface or edge thereof, all to an end that the overall web or sheet may be identified as having a particular structure.

360, for a mass (not a sheet or web) of staple length fibers bonded at their intersections only.

222 This subclass is indented under subclass 221. Product wherein (1) components are twisted or folded about one another or (2) a web or sheet, or a component thereof, is arranged in a series of mutually parallel convolutions extending along the longitudinal axis of the web or sheet.

(1) Note. The product formed by (1) above, must be the result of twisting or folding (e.g., braiding) of components; where the product is formed by braiding strands, classification is proper in Class 87, Textiles: Braiding, Netting, and Lace Making; see search note below.

SEE OR SEARCH THIS CLASS, SUBCLASS:

131+, for a product formed by threading one component through spaced longitudinal openings or apertures in another component.

SEE OR SEARCH CLASS:

57, Textiles: Spinning, Twisting, and Twining, subclasses 259 and 260 for a strand structure made up wholly or in part of twisted tape as claimed.

87, Textiles: Braiding, Netting, and Lace Making, subclasses 3+ for a fabric of intertwisted strands and subclasses 8+ for a fabric of braided strands as claimed.

138, Pipes and Tubular Conduits, subclasses 129+ and 154 for a solid-wall tubular structure which includes helically arranged convolutions of web or strand material as claimed.

223 This subclass is indented under subclass 221. Product in which a plurality of layers or components are connected by a separate and distinct mechanical connecting member extending over the edges of and/or into a plurality of layers or components.

(1) Note. Stitching is not considered to be a mechanical fastener.

SEE OR SEARCH THIS CLASS, SUBCLASS:

99+, for a product in which there is a mechanical fastener for attaching the

product to an external surface or another product.

101, for a similar product having plural components which are relatively movable.

198, for a similar product in which a plurality of components are spot bonded to one another.

SEE OR SEARCH CLASS:

52, Static Structures (e.g., Buildings), subclasses 782.1+ for a sandwich or hollow panel including a discrete interlaminar fastener.

292.1 Noninterengaged fiber-containing paper-free web or sheet which is not of specified porosity:

This subclass is indented under subclass 221. Product wherein a fiber-containing web or sheet comprises of one or more structurally defined fibers embedded in or on the surface of a matrix wherein the fibers are not interengaged with one another or formed into a fabric having structural integrity prior to association with the matrix material, the fiber-containing web or sheet being neither paper nor of specified porosity.

(1) Note. Matrix materials containing fiber as a filler material do not belong in this subclass.

SEE OR SEARCH THIS CLASS, SUBCLASS:

311.11, 311.31, 311.51, 311.71, and 311.91, for articles of specified porosity wherein the article comprises solely a continuous matrix of fibers (e.g., porous paper, etc.).

317.9, for articles of specified porosity wherein the article contains fibers.

SEE OR SEARCH CLASS:

162, Paper Making and Fiber Liberation, subclasses 100 through 231, for paper products, per se.

292.4 Fiber-containing wood product (e.g., hardboard, lumber, or wood board, etc.):

This subclass is indented under subclass 292.1. Subject matter wherein the web or sheet comprises at least one layer in the form of a wood product such as hardboard, lumber, or wood board.

292.7 Including paper layer:

This subclass is indented under subclass 292.4. Subject matter wherein the web or sheet is in association with a paper layer.

293.1 Fiber embedded in a metal matrix:

This subclass is indented under subclass 292.1. Subject matter wherein the web or sheet comprises a metal matrix having fibers embedded therein.

293.4 Fiber embedded in a ceramic, glass, or carbon matrix:

This subclass is indented under subclass 292.1. Subject matter wherein the web or sheet comprises a ceramic, glass, or carbon matrix having fibers embedded therein.

293.7 Fibers are aligned substantially parallel:

This subclass is indented under subclass 293.4. Subject matter wherein the fibers are oriented in a particular direction, the fibers being parallel to one another.

294.1 Fiber is precoated:

This subclass is indented under subclass 293.7. Subject matter wherein the fibers are coated with a material prior to incorporation in the matrix material.

294.4 Free metal or alloy fiber:

This subclass is indented under subclass 293.4. Subject matter wherein the fiber is metal in elemental or alloy form.

294.7 Fiber embedded in a layer derived from a water-settable material (e.g., cement, gypsum, etc.):

This subclass is indented under subclass 292.1. Subject matter wherein the web or sheet comprises a water-settable material (e.g., cement, gypsum, etc.) which forms a distinct layer having fibers embedded therein.

295.1 Fibers embedded in or on the surface of a natural or synthetic rubber matrix:

This subclass is indented under subclass 292.1. Subject matter wherein the web or sheet comprises a rubber matrix, the rubber being natural or synthetic rubber and having fibers embedded therein or on the surface of the matrix.

295.4 Fibers are aligned substantially parallel:
This subclass is indented under subclass 295.1. Subject matter wherein the fibers are oriented in a particular direction, the fibers being parallel to one another.

295.7 Fiber is nonlinear (e.g., crimped, sinusoidal, etc.):
This subclass is indented under subclass 295.4. Subject matter wherein the fibers, per se, are specifically stated to be crimped, sinusoidal, coiled, etc., or the orientation of the fibers in the matrix material is nonlinear.

296.1 Fiber is precoated:
This subclass is indented under subclass 295.4. Subject matter wherein the fibers are precoated with a material prior to being embedded in the matrix or affixed to the matrix surface.

296.4 Fiber is precoated:
This subclass is indented under subclass 295.1. Subject matter wherein the fibers are coated with a material prior to incorporation in the matrix material or being affixed to the matrix surface.

296.7 Composite or conjugate fiber (e.g., fiber contains more than one chemically different material in monofilament or multifilament form, etc.):
This subclass is indented under subclass 295.1. Subject matter wherein the embedded or surface fibers contain at least two chemically different materials in monofilament or multifilament form.

297.1 Two or more layers:
This subclass is indented under subclass 295.1. Subject matter wherein the fiber-containing rubber matrix is associated with one or more additional layers.

297.4 Fiber embedded in or on the surface of a polymeric matrix:
This subclass is indented under subclass 292.1. Subject matter wherein the web or sheet comprises a polymeric matrix having fibers embedded in or on the surface thereof.

297.7 Fiber is on the surface of a polymeric matrix having no embedded portion:
This subclass is indented under subclass 297.4. Subject matter wherein the fibers are affixed to a surface of the polymeric matrix.

298.1 Fibers are aligned substantially parallel:
This subclass is indented under subclass 297.4. Subject matter wherein the fibers are oriented in a particular direction, the fibers being parallel to one another.

298.4 Fiber is nonlinear (e.g., crimped, sinusoidal, etc.):
This subclass is indented under subclass 298.1. Subject matter wherein the fibers, per se, are specifically stated to be crimped, sinusoidal, coiled, etc., or the orientation of the fibers in the polymeric matrix is nonlinear.

298.7 Fiber is precoated:
This subclass is indented under subclass 298.1. Subject matter wherein the fibers are coated with a material prior to incorporation in the polymeric matrix.

299.1 Carbon or carbonaceous fiber:
This subclass is indented under subclass 298.1. Subject matter wherein the embedded fibers are carbon (graphite) or carbonaceous fibers.

299.4 Glass fiber:
This subclass is indented under subclass 298.1. Subject matter wherein the embedded fibers are glass fibers.

299.7 Polymeric fiber:
This subclass is indented under subclass 298.1. Subject matter wherein the embedded fibers are polymeric fibers.

300.1 Fiber is precoated:
This subclass is indented under subclass 297.4. Subject matter wherein the fibers are coated with a material prior to being incorporated in the polymeric matrix or being affixed to a surface of the polymeric matrix.

300.4 Two or more chemically different fibers:
This subclass is indented under subclass 297.4. Subject matter wherein the fibers include at least two chemically different fibers.

300.7 Two or more layers:
This subclass is indented under subclass 297.4. Subject matter wherein the fiber-containing polymeric matrix is associated with one or more additional layers.

301.1 Including a free metal or alloy constituent:
This subclass is indented under subclass 300.7. Subject matter wherein the layers comprise a metal in elemental or alloy form (i.e., other than in the form of a chelate, salt, or compound resulting from the chemical reaction of a metal).

301.4 At least one thermosetting synthetic polymeric material layer:
This subclass is indented under subclass 300.7. Subject matter wherein the layers comprise a thermosetting synthetic polymeric layer.

304.4 Composite having voids in a component (e.g., porous, cellular, etc.):
This subclass is indented under subclass 221. Subject matter which consists of at least two components, at least one of which has internal spaces either containing at least a gas and/or devoid of identifiable contents.

(1) Note. This subclass and its indented subclasses have been established to provide a search field for those inventions in stock material in which the void-containing nature of a component is the essence of the invention; thus, to be classified in this group of subclasses, the void-containing nature of the component must either (a) be expressed explicitly in a claim, (b) be necessary for a claimed utility of the product or (c) be disclosed in the specification and be incorporatable into the claims to resolve an ambiguity in the claims.

(2) Note. The designation of a component as porous, cellular or permeable will be construed as void-containing.

(3) Note. A porous layer or component having an impervious skin thereon will be considered to have two components for purposes of this subclass, the skin being one of the components or layers.

(4) Note. An impregnated material is assumed not to contain voids and must be disclosed or claimed as still containing porosity in order to warrant placement in this or indented subclasses. Thus, paper is not considered to be a void-containing component unless it is specified as being porous or permeable.

(5) Note. The inclusion in a component of hollow or porous fibers or particles will be assumed to make the component a void-containing component only when it is clearly disclosed that the fibers or particles maintain their hollowness or porosity after being compounded into the component.

SEE OR SEARCH THIS CLASS, SUBCLASS:

131+, for a web, sheet or layer with rectilinear through openings (apertures) which may render the product inherently porous.

188, for a web or sheet including an elongated tubular cell located between and lying with its axis substantially parallel to the nonthickness surfaces of the web or sheet.

320.2+, for a composite having a component which includes filled “voids”.

323+, for a composite sheet or web including a particulate layer.

357+, for a mass or single layer of or containing, elements which may by inherently porous or cellular or wherein the disposition of the elements renders the product porous or cellular but wherein such porosity is not claimed.

550, 566 and 613, for similar subject matter which is all metal or comprises adjacent metals.

SEE OR SEARCH CLASS:

34, Drying and Gas or Vapor Contact With Solids, subclasses 95+ for a drying device (e.g., blotter) which includes a porous and therefore liquid-adsorbent sheet.

106, Compositions: Coating or Plastic, appropriate subclasses for a porous or void-containing composition of that type, even in the form of a single layer

sheet or web which lacks any other definite structural features. See particularly subclasses 40+, 122, 601+, and 672+.

156, Adhesive Bonding and Miscellaneous Chemical Manufacture, subclasses 77+ for a method of forming pores in a lamina during or subsequent to lamination.

181, Acoustics, subclasses 284+ for a web or sheet with either internal or external structure, which structure is disclosed as provided for the purpose of muffling sound.

210, Liquid Purification or Separation, subclasses 500.1+ for material peculiarly adapted for use as a liquid separation filter and see Relation to Material or Composition Classes of the definition of this class (428).

252, Compositions, subclass 62 for heat or sound insulating compositions.

501, Compositions: Ceramic, subclasses 39 and 80+ for pore-forming compositions.

521, Synthetic Resins or Natural Rubbers, subclasses 50+ for methods of making a cellular resin product and such products, even in the form of a single layer web or sheet, which lack definite structural features.

604, Surgery, subclasses 358+ for diapers and absorbent pad materials.

305.5 With chemically effective material or specified gas other than air, N, or carbon dioxide in void-containing component:

This subclass is indented under subclass 304.4. Subject matter wherein the voids of a component contains a gas specified to be other than air, nitrogen or carbon dioxide; or where the void-containing component contains also a material which is susceptible to a ready chemical reaction in use of the product, e.g., to decomposition at an elevated temperature, etc.

(1) Note. The chemically effective material often is incorporated in the product for fire or flameproofing purposes.

(2) Note. Removal of water of hydration from a hydrated compound is considered to be a chemical reaction.

SEE OR SEARCH THIS CLASS, SUBCLASS:

321.1, for a composite product having a decomposable liquid impregnated in a previously void-containing component.

SEE OR SEARCH CLASS:

252, Compositions, subclasses 2+ and 601 for fire-extinguishing and fire-proofing compositions, per se, respectively.

306.6 Void-containing component partially impregnated with adjacent component:

This subclass is indented under subclass 304.4. Subject matter wherein a void-containing component is partially impregnated with the material which constitutes an adjacent component of the composite.

(1) Note. The impregnating material may itself be void-containing, e.g., a foam, etc.

(2) Note. Ordinarily the void-containing component is in a solid, self-sustaining form during the impregnation, while the impregnant is in a fluent form.

SEE OR SEARCH THIS CLASS, SUBCLASS:

309.9, for a product made by commingling some material of two adjacent foam layers, usually in fluent or uncured form, to make an intermediate layer.

307.3 Void-containing component is inorganic:

This subclass is indented under subclass 306.6. Subject matter in which the matrix of the void-containing component is inorganic, e.g., carbide, metal, graphite, refractory, ceramic, glass, etc.

307.7 Inorganic impregnant:

This subclass is indented under subclass 307.3. Subject matter in which the impregnant also is inorganic, e.g., glass, hydraulic cement, etc.

308.4 Void-containing component is synthetic resin or natural rubbers:

This subclass is indented under subclass 306.6. Subject matter in which the void-containing component is identified as a synthetic resin

composition and claimed as such, e.g., polyvinyl chloride, polyurethane, acrylonitrile-butadiene-styrene, etc.

(1) Note. A synthetic resin is the material described in the definition of Class 520, subclass 1.

308.8 Void-containing component is wood or paper:

This subclass is indented under subclass 306.6. Subject matter wherein the void-containing component is cellulosic and is claimed as wood or paper.

309.9 With internal element bridging layers, nonplanar interface between layers, or intermediate layer of commingled adjacent foam layers:

This subclass is indented under subclass 304.4. Subject matter wherein an interface between layers of a composite is claimed in such fashion that a wavy, keyed or otherwise nonflat function of the layers is required to meet the terms of the claims or an intermediate layer is created by commingling some material of two adjacent foam layers, usually in fluent form or wherein an element of the composite such as a fiber, etc., passes from one layer to another of the composite.

SEE OR SEARCH THIS CLASS, SUBCLASS:

609, and 612, for similar subject matter which is all metal or has adjacent metals.

310.5 With gradual property change within a component:

This subclass is indented under subclass 304.4. Subject matter wherein a component has a property, e.g., density, composition, pore size, hardness, concentration of ingredients, etc., which varies gradually from one surface to another surface of the same component.

(1) Note. The change of property usually is so gradual that no area within the component can be identified as an interface between components.

SEE OR SEARCH THIS CLASS, SUBCLASS:

547, and 610, for similar subject matter which is all metal or has adjacent metals.

311.11 Void-containing component has a continuous matrix of fibers only (e.g., porous paper, etc.):

This subclass is indented under subclass 304.4. Subject matter wherein a component of the composite is one which depends solely upon fibers for its continuity.

311.31 And a force disintegratable component (e.g., stencil sheet, etc.):

This subclass is indented under subclass 311.11. Subject matter wherein a component of the composite may be locally disintegrated by the application of a sudden force thereto; for example, by a typewriter key.

(l) Note. Where the product is designated as having a stencil sheet, wherein an ink is to pass through the product in its final use, it is assumed that the nondisintegrated component is porous. See the definition of subclass 304.4, (1) Note, (b).

SEE OR SEARCH THIS CLASS, SUBCLASS:

321.1+, for a composite which includes liquid.

488.1, for so-called “carbon paper”, comprising not necessarily porous paper and a waxy component having pigment, dye, or color forming reagent.

311.51 Fibers of defined composition:

This subclass is indented under subclass 311.11. Subject matter wherein the chemical makeup of the fibers is specified, as, for example, natural leather, polypropylene, etc.

311.71 Cellulosic:

This subclass is indented under subclass 311.51. Subject matter wherein the fiber is made of cellulose or a cellulose derivative (e.g., paper, etc.).

311.91 Plural cellulosic components:
This subclass is indented under subclass 311.71. Subject matter wherein the composite comprises two or more layers of fibrous cellulose material.

312.2 Inorganic matrix in void-containing component:
This subclass is indented under subclass 304.4. Subject matter in which the void-containing component has a continuous phase of material, e.g, porous cermic, etc., which is free from carbon atoms or contains carbon atoms only as elemental carbon, as a carbide, carbonate, cyanide or cyanate.

SEE OR SEARCH THIS CLASS, SUBCLASS:
317.9, for a composite wherein the void-containing component contains an organic matrix with inorganic fibers or particles distributed discontinuously therein.

312.4 Of hydraulic-setting material:
This subclass is indented under subclass 312.2. Subject matter wherein the inorganic material is cementitious and is set or hardened by hydration or hydrolysis, e.g., concrete, plaster, etc.

312.6 Of silicon-containing material (e.g., glass, etc.):
This subclass is indented under subclass 312.2. Subject matter wherein the inorganic matrix comprises elemental silicon or a compound formed of silicon, e.g., quartz, glass, silicon carbide, etc.

312.8 Of metal-containing material:
This subclass is indented under subclass 312.2. Subject matter wherein the inorganic material is specified as being elemental metal, an alloy or a metal compound, e.g., a ceramic, etc.

SEE OR SEARCH THIS CLASS, SUBCLASS:
312.6, for a similar composite having quartz or glass as the continuous phase.

313.3 Preformed hollow element-containing:
This subclass is indented under subclass 304.4. Subject matter wherein voids of the component result from the incorporation therein of a filler, aggregate, etc., which itself is hollow, rather than merely from voids, the walls of which constitute the material of the continuous matrix.

SEE OR SEARCH THIS CLASS, SUBCLASS:
320.6+, for a composite having in a component preformed capsules containing a color forming material.

313.5 Resin or rubber element:
This subclass is indented under subclass 313.3. Subject matter wherein the preformed hollow element is composed of resin or rubber, e.g., a hollow resin capsule containing air, etc.

(1) Note. A synthetic resin is the material described in the definition of Class 260, subclass 2.01.

313.7 Mineral element:
This subclass is indented under subclass 313.3. Subject matter wherein the preformed hollow element is a mineral which is naturally void-containing or which has been treated to create voids, e.g., by heating, etc., such minerals including expanded vermiculite, perlite, mica, clay, etc.

SEE OR SEARCH CLASS:
252, Compositions, subclass 378 for exfoliated or intumesced compositions in general.

313.9 Metal- or silicon-containing element:
This subclass is indented under subclass 313.3. Subject matter wherein the element contains metal or silicon in free or combined form, e.g., refractory, ceramic, glass, etc.

314.2 Void shape specified (e.g., crushed, flat, round, etc.):
This subclass is indented under subclass 304.4. Subject matter wherein the geometric configuration of the voids, whether regular or irregular, is specified in the claims.

(1) Note. Use of the term “crushed”, designated a foam which has been treated, usually by pressure, to reduce the size of the foam cells and give the cell walls a broken and/or irregular configuration, is

sufficient to place a patent in this subclass.

314.4 Voids specified as closed:
This subclass is indented under subclass 304.4. Subject matter wherein the voids in the void-containing component are specified as being closed, rather than forming a series of interconnected voids, e.g., closed-cell foam, etc.

314.8 Specified thickness of void-containing component (absolute or relative), numerical cell dimension or density:
This subclass is indented under subclass 314.4. Subject matter in which either the thickness of the void-containing component is claimed in terms of numbers or in relation to the thickness of another component, e.g., thicker, thinner, etc.), a numerical cell size (microns, etc.) or density (pounds per cubic foot, etc.) is claimed.

315.5 Voids specified as micro:
This subclass is indented under subclass 304.4. Subject matter wherein the voids of the void-containing component are claimed as being invisible to the naked eye.

(1) Note. Where the voids are described using the word or prefix "micro", the voids are assumed to be invisible to the naked eye.

315.7 Specified thickness of void-containing component (absolute or relative) or numerical cell dimension:
This subclass is indented under subclass 315.5. Subject matter in which the thickness of a void-containing component is claimed in terms of numbers or in relation to the thickness of another component, e.g., thicker, thinner, etc. or a numerical cell size is claimed, usually expressed in terms of microns, angstroms, etc.

315.9 Composite has more than two layers:
This subclass is indented under subclass 315.5. Subject matter in which the composite comprises at least three layers.

316.6 Plural void-containing components:
This subclass is indented under subclass 304.4. Subject matter having more than one component containing voids.

317.1 With component specified as adhesive or bonding agent:
This subclass is indented under subclass 304.4. Subject matter having a component which is claimed as having an adhesive function serving to bond other components together, etc.

(1) Note. The void-containing component may serve as the bonding component.

SEE OR SEARCH THIS CLASS, SUBCLASS:
40+, for a composite in which an outer layer is removable in order to expose an adhesive, e.g., certain protected pressure-sensitive adhesive tapes, etc.

317.3 As outermost component:
This subclass is indented under subclass 317.1. Subject matter wherein the adhesive or bonding component is an outermost layer of the composite, that is, the composite is designed to be adhered to a material or object outside of the composite.

317.5 Adhesive or bonding component contains voids:
This subclass is indented under subclass 317.1. Subject matter wherein the bonding or adhesive component itself contains voids, e.g., a poromeric, cellular, foam, etc., component itself is used to bond nonvoid component together.

SEE OR SEARCH THIS CLASS, SUBCLASS:
316.6, for a composite in which a void-containing component is used to bond another void-containing component.

317.7 Composition of adhesive or bonding component specified:
This subclass is indented under subclass 317.1. Subject matter wherein the void-containing component is identified in the claims by its chemical makeup, e.g, a resin, asphalt, etc.

317.9 Void-containing component contains also a solid fiber or solid particle:
This subclass is indented under subclass 304.4. Subject matter in which a solid particle or solid fiber is dispersed in the void-containing component.

SEE OR SEARCH THIS CLASS, SUBCLASS:

305.5, for such subject matter where the fiber or particle is of a chemically effective material.

311.11+, for such subject matter where fibers are present in such amount and arrangement as to constitute a continuous matrix.

318.4 With nonvoid component of specified composition:

This subclass is indented under subclass 304.4. Subject matter wherein the composite has a layer without voids which is claimed in terms of its composition.

(1) Note. A mere statement of that the nonvoid component is "a substrate", "a layer", "a film", etc., is not sufficient for placement in this subclass, but identification of the component as "metal", "organic", etc., is sufficient.

318.6 Of about the same composition as, and adjacent to, the void-containing component:

This subclass is indented under subclass 318.4. Subject matter wherein a void-containing component has, next to it, a component without voids which varies not more than about 10% in the proportion of its solid constituents from the composition of the void-containing component.

(1) Note. Insofar as synthetic resins, per se, are concerned, the 10% permissible variation is to be applied to the monomer residue content of the finished polymer; differences in molecular weight, crystallinity, etc., are not considered to be differences in composition.

318.8 Integrally formed skin:

This subclass is indented under subclass 318.6. Subject matter in which the nonvoid component is identical in composition to the composition of the void-containing component and is formed simultaneously with the void-containing component.

SEE OR SEARCH CLASS:

521, Synthetic Resins or Natural Rubbers, subclass 51 for a process of preparing a cellular resin product having an integral skin.

319.1 Inorganic:

This subclass is indented under subclass 318.4. Subject matter in which the nonvoid component is free from carbon atoms or contains carbon atoms only as elemental carbon, as a carbide, carbonate, cyanide or cyanate.

319.3 Synthetic resin or natural rubbers:

This subclass is indented under subclass 318.4. Subject matter in which the nonvoid component is a synthetic resin.

(1) Note. A synthetic resin or natural rubbers is the material described in the definition of Class 260, subclass 2.01.

319.7 Linear or thermoplastic:

This subclass is indented under subclass 319.3. Subject matter wherein the nonvoid component is a synthetic resin without cross-linkages, that is, one which softens reversably under the influence of heat.

319.9 Hydrocarbon polymer:

This subclass is indented under subclass 319.7. Subject matter wherein the resin contains carbon and hydrogen only.

320.2 Composite having a component wherein a constituent is liquid or is contained within performed walls (e.g., impregnant-filled, previously void-containing component, etc.):

This subclass is indented under subclass 221. Subject matter consisting of at least two components, at least one of which contains liquid or has a constituent trapped inside walls made before combination with the other constituent.

SEE OR SEARCH THIS CLASS, SUBCLASS:

408, for an impregnated, self-sustaining, carbon mass.

439.5, for a consolidated metal powder product impregnated with a nonmetal.

540+, for an impregnated natural product.

321.1 Constituent is in liquid form:
This subclass is indented under subclass 320.2. Subject matter wherein a component contains a material which is a liquid at ambient temperature or is a liquid at the conditions under which the product is used.

(1) Note. A liquid for purposes of this subclass is a material of definite volume which takes the shape of its container at ambient temperature or temperature of use of the claimed product. It includes collodial dispersions in which liquid is the continuous or dispersant phase.

321.3 Ink in pores:
This subclass is indented under subclass 321.1. Subject matter wherein the liquid is claimed as ink and is trapped within pores of a carrier material.

(1) Note. Generally, the ink is extrudable from the pores under the influence of pressure.

SEE OR SEARCH CLASS:
106, Compositions: Coating or Plastic, subclasses 20+ for ink compositions, per se.

321.5 Encapsulated liquid:
This subclass is indented under subclass 321.1. Subject matter wherein the liquid has been encapsulated in a solid material before incorporation into the component in question.

(1) Note. A statement that the liquid is in the form of "microcapsules" is sufficient for placement of the patent in this subclass.

SEE OR SEARCH THIS CLASS, SUBCLASS:
313.3, for composite stock materials containing "empty" microcapsules.

322.2 Indefinite plurality of similar impregnated thin sheets (e.g., "decorative laminate" type, etc.):
This subclass is indented under subclass 320.2. Subject matter comprising an unspecified number, greater than two, of sheets bonded together, each sheet being of similar material to the others and having at least one negligible dimension, each sheet having once been porous but having lost its porosity by being impregnated with a fluid material before or after assembly of the stack.

(1) Note. The impregnant usually is a non-fully, polymerized resin and the bonding usually includes completion of polymerization, i.e., curing, of the resin.

(2) Note. The products usually are "decorative laminates", such as those used for counter-tops, dishes, etc., sold under trade names such as Formica, Melmac, etc.

322.7 Differentially filled foam, filled plural layers, or filled layer with coat of filling material:
This subclass is indented under subclass 320.2. Subject matter wherein the structure of a foamed material bridges two or more distinct components, wherein a solidified impregnant permeates two or more adjacent previously porous components of an assembled composite or wherein such an impregnant permeates a previously porous component and also coats an outside surface of the component.

323 This subclass is indented under subclass 221. Product which comprises at least two components, one of which consists of or includes grains or extremely small pieces or fragments of material claimed in terms of (1) their particular size or shape (natural or fabricated) or (2) an orderly arrangement relative to one another or (3) their particular interengagement within the component, or (4) their engagement with the material of an adjacent component.

(1) Note. A web, sheet or layer claimed as having a haphazard arrangement of its particulate constituents is not considered as possessing an orderly arrangement of its particulate constituent within the definition of this subclass.

(2) Note. A composite web or sheet in which its particulate constituents are claimed as being in an orderly arrangement relative to a surface of the web or sheet is considered to be a structurally

defined web or sheet and will be found in subclasses 98+.

(3) Note. Coated particles* are considered to be structurally defined and therefore, a composite web in which one layer or component contains coated particles will be placed in this or an indented subclass.

SEE OR SEARCH THIS CLASS, SUBCLASS:

304+, for a web or sheet comprising a component embodying porous or cellular particles so claimed.

357+, for a mass of or containing oriented or structurally defined particles.

411+, for a nonstructural laminate incorporating particulate material neither oriented nor structurally defined.

SEE OR SEARCH CLASS:

149, Explosive and Thermic Compositions or Charges, subclasses 110+ for a product of that class (149) embodying particulate material of a certain size(s).

324 This subclass is indented under subclass 323. Product in which the particles* comprises any of the group of mineral silicates commonly called "mica".

(1) Note. The term "mica" will be construed as connoting flakes of flat configuration and therefore structurally defined unless the disclosure clearly contradicts such an interpretation; see (1) Note in subclass 454.

SEE OR SEARCH THIS CLASS, SUBCLASS:

363, for a mass or single layer of or containing mica flakes.

SEE OR SEARCH CLASS:

106, Compositions: Coating or Plastic, subclasses 415+ for a composition of that class (106) including mica.

252, Compositions, subclass 378 for a composition containing exfoliated or intumesced material.

325 This subclass is indented under subclass 323. Product wherein the particles are of material made from clay*, usually by the agency of fire.

(1) Note. Included under this definition of ceramic* are those materials termed as glass*, pottery, enamel, cement, refractories*, porcelain* or quartz.

326 This subclass is indented under subclass 323. Product wherein the particles comprise carbohydrate material derived from the structural matter of plant life, usually from the stems thereof.

(1) Note. This carbohydrate is commonly termed cellulose* and may be further treated to yield esterified, modified or regenerated substances such as rayon* or viscose*.

327 This subclass is indented under subclass 323. Product in which the particles comprise an organic substance which is synthetically produced by union (polymerization or condensation) of a large number of molecules of one or more relatively simple compounds.

(1) Note. Particles of naturally occurring polymeric material or reaction products thereof, e.g., carbohydrate, polypeptides and cellulosic products, are excluded from this definition of polymer and will be found in other subclasses on other features, e.g., subclass 326 for carbohydrates, etc.

328 This subclass is indented under subclass 323. Product in which the particles comprise (1) a free metal* having a specific gravity or density greater than 4, or (2) the free metal* aluminum or (3) a compound having the metal* of either (1) or (2) above in its molecule.

329 This subclass is indented under subclass 328. Product wherein the metal is iron or aluminum and is present as the oxide.

330 This subclass is indented under subclass 323. Product in which the particles comprise a metal* selected from the group consisting of Li, Na, K, Rb, Cs, Mg, Ca, Sr and Ba (i.e., the alkali or alkaline earth metals) in either the free

form or combined with other elements and forming either an inorganic or organic compound.

331 This subclass is indented under subclass 323. Product in which the particles comprise the element silicon (Si) in either its free or combined form.

332 This subclass is indented under subclass 221. Product in which the size of an element, constituent, or component of a web or sheet is claimed.

(1) Note. The difference between 212+ and this subclass and indents (332+) is that in the former the thickness of two components* are recited, while in the latter the thickness of only the base or layer is specified. Where the dimensions of two components* are specified so that one can be compared to another, classification in 212+ is indicated.

(2) Note. In this and the indented subclasses a size in units of length must be specified in the claim. A recitation of weight per unit area is excluded from this group of subclasses and will be found in subclasses 340+ below.

SEE OR SEARCH THIS CLASS, SUBCLASS:

212+, for a composite web or sheet in which the thickness of two components is claimed either in terms of their relative thickness or in absolute dimensions.

220, for a product in which the absolute dimension of a web* or sheet* is claimed.

340+, for a recitation of a weight per unit area which can be calculated to yield a physical dimension, if another parameter, such as density, is known.

333 This subclass is indented under subclass 332. Product in which the claimed size is defined in terms of molecules of the material or of wave length of light.

(1) Note. Included within this definition are recitations setting forth (1) a certain number (one or more) molecules thick or (2) a portion of a wave length of any color of light.

334 This subclass is indented under subclass 332. Product in which the absolute physical dimension specified is the thickness of a coating layer* and which does not exceed 5 mils or the equivalent thereof.

(1) Note. Examples of equivalents are: 1 mil=.001 inch=.0254 mm (milliter)=25.4 u or mu(micron)=254,000 A (Angstroms).

SEE OR SEARCH THIS CLASS, SUBCLASS:

332, for a product in which a coating layer is recited in a range which starts at less than 5 mils but transcends this figure (e.g., 4-17 mils, etc.).

335 This subclass is indented under subclass 334. Product in which the thickness does not exceed 3 mils or its equivalent.

336 This subclass is indented under subclass 335. Product in which the thickness does not exceed 1 mil or its equivalent.

337 This subclass is indented under subclass 332. Product in which the absolute size of the base* or substrate* of a composite web or sheet is claimed.

SEE OR SEARCH THIS CLASS, SUBCLASS:

220, for a web or sheet in which the size of the entire sheet or web is claimed.

338 This subclass is indented under subclass 332. Product consisting of a single layer of material in which the dimension of an element (e.g., particle*, etc.) is claimed.

SEE OR SEARCH THIS CLASS, SUBCLASS:

220, for a product in which the absolute size of the web or sheet is defined.

339 This subclass is indented under subclass 332. Product in which there is a component comprising a man made resin or polymer.

340 This subclass is indented under subclass 221. Product in which is recited the weight of a material related to its area.

(1) Note. The "material" may be a web, sheets component, base*, coating, layer or element.

(2) Note. Some examples of terms used are: pounds per square meter, grams per square centimeter, pounds per square foot, grams per quire of certain size paper, etc.

(3) Note. This is excluded from subclasses 332+ even though the thickness can be calculated if the density of the material be known.

SEE OR SEARCH THIS CLASS, SUBCLASS:

332+, for an element or component recited in terms of its actual physical dimension in units of length (e.g., mils, inches, microns, etc.).

341 This subclass is indented under subclass 340. Product in which it is the weight of a coating over a given area which is specified.

342 This subclass is indented under subclass 341. Product in which the specified coating is on the surface of a cellulosic* material.

343 This subclass is indented under subclass 221. Product comprising a composite* web or sheet in which an outermost layer is capable of sticking to a surface to which it may be applied or of being activated to have such capability.

(1) Note. The adhesive layer need not be applied to an extraneous surface; it could be applied to and caused to adhere to itself or to another portion of the composite* web or sheet, as in heat sealable packaging films.

SEE OR SEARCH THIS CLASS, SUBCLASS:

40+, for a product which comprises at least two layers or components, one of which must be removed to expose an adhesive coating.

SEE OR SEARCH CLASS:

442, Fabric (Woven, Knitted, or Nonwoven Textile or Cloth, etc.), subclasses 59+ for a product comprising mechanically interengaged strands or strand portions, etc., having an adhesive coating or impregnation associated therewith.

344 This subclass is indented under subclass 343. Product in which the adhesive layer is adjacent a metal* layer.

345 This subclass is indented under subclass 343. Product in which at least one of the components of the composite sheet has been subjected to a source (1) of ultraviolet radiation, especially wavelengths of 250-300m u, or (2) energy transmitted by various mediums.

(1) Note. Examples of irradiation or wave energy devices are: light or electron emitters, sonic devices, electric glow discharges, etc. and the term wave energy includes radiations, electromagnetic waves, neutron, proton, deutron and other corpuscular radiations.

346 This subclass is indented under subclass 343. Product in which the adhesive is caused to become capable of adhering to a surface by virtue of having been contacted with a material which causes at least a portion of the adhesive to be dissolved or otherwise activated, or by having its temperature increased, usually by contact with a heated surface.

347 This subclass is indented under subclass 346. Product in which the adhesive is caused to adhere by increase in temperature.

SEE OR SEARCH THIS CLASS, SUBCLASS:

200, for a product which comprises a nonuniform (i.e., differential or discontinuous) coating and in addition an adhesive layer which is caused to either adhere or delaminate by means of increase in temperature.

348 This subclass is indented under subclass 347. Product in which the adhesive contains a compound which is described as a wax (e.g., bees-

wax or paraffin, etc.) or having the physical characteristics of a wax or is a recognized wax* (e.g., carnauba, etc.).

349 This subclass is indented under subclass 347. Product in which the adhesive contains a man-made resin or polymer.

350 This subclass is indented under subclass 346. Product in which water is the material which contacts the adhesive to cause it to adhere to another surface.

351 This subclass is indented under subclass 343. Product in which a component has been made hydrophobic or less hydrophilic (i.e., waterproof or moistureproof or resistant).

352 This subclass is indented under subclass 343. Product which contains an additional layer or component of such characteristics that it does not permanently adhere to a surface (which may be another layer of the product) with which it may come into contact.

(1) Note. A release or anti-stick coating such is that under this definition is usually provided on the side of the base* opposite that which supports the adhesive, in order to prevent adherence when stacked or rolled.

SEE OR SEARCH THIS CLASS, SUBCLASS:

40+, for a product in which a release layer is removed to expose another layer or component having an adhesive coating thereon.

353 This subclass is indented under subclass 343. Product comprising a three layered product in which there is a layer between the adhesive and the substrate, which layer is used to increase the cohesiveness between the adhesive layer and the substrate.

(1) Note. The intermediate layer may be called by various names, e.g., primer or bonding layer, or anchor coat, etc.

354 This subclass is indented under subclass 343. Product in which three or more layers are claimed either in the form of plural coatings on a substrate or a laminate of two or more layers having an adhesive layer therebetween.

355 This subclass is indented under subclass 343. Product in which the adhesive composition is recited.

(1) Note. For classification in this or the indented subclass, at least one of the ingredients of the adhesive must be recited specifically, for example as “gum arabic”, “linseed oil”, etc., not nominally, as for example, “oil”, “gum”, etc.

356 This subclass is indented under subclass 355. Product in which an ingredient of the adhesive composition comprises (1) rubber* from a natural source or (2) a metal* in either its free or combined state.

(1) Note. The term “reclaimed” rubber is considered to be natural for purposes of this subclass unless it is clear from the disclosure that a synthetic rubber is intended, in which case classification in subclass 355 is indicated.

(2) Note. If it is not clear whether natural or synthetic rubber is intended from either the disclosure or claims, then classification is in subclass 355 on the basis of synthetic rubber, with a cross reference, if necessary, to subclass 356.

357 This subclass is indented under the class definition. Product containing, or consisting of, at least one strand*, strand-portion*, macroscopic fiber*, grain, small bit of matter, cell*, particle* or any other substance, claimed in terms of (1) a particular size or shape (natural or fabricated), (2) a plurality of such elements* claimed in terms of an arrangement relative to one another, (3) a particular interengagement of a plurality of such elements* or (4) a coating associated therewith.

(1) Note. The molecular orientation or crystalline structure of a product is considered a mere manifestation of the nature of the material thereof; accordingly, the recitation of either is not considered structure within the meaning of that word as used in this subclass.

(2) Note. A patent directed to a single layers or mass* of a particular composition which is further defined as "cellular", "particulate" or "porous" (by name only), will be placed in the appropriate composition class in the absence of defined structure (see above clauses in the definition of this subclass).

(3) Note. A patent to a structurally defined particle will be placed in this, or the appropriate indented subclass as a subcombination of the subject matter provided for herein, unless specifically provided for elsewhere.

(4) Note. Excluded from this or indented subclasses is a rod, strand, fiber or filament which is merely impregnated with or has associated therewith a material, without any specified indication as to the depth of the impregnation, or without any other recited structure; such a combination is classified on the basis of the composition, e.g., for Classes 106, 260, 520, etc.

(5) Note. The term "sizing" or "sized" will be construed to be a coating for this group of subclasses unless it is clear that only an impregnation is intended; see (4) Note above.

(6) Note. A mass of fibers merely bonded together with no recitation of structure, is excluded from this Class 428 and will be found in the appropriate composition class; see search notes below.

(7) Note. The term "flake" is construed as structure, indicating a flat piece of matter.

(8) Note. Included under this definition of "significant size" is any recitation of a measurable extent, no matter how wide (e.g., up to 0.5 mils, etc.).

SEE OR SEARCH THIS CLASS, SUBCLASS:

221, for a web* or sheet* of fibers or filaments* which are claimed as being bonded at their intersections.

292.1+, for a composite* web or sheet in which one component* contains fibers.

323+, for a composite* web or sheet in which one component contains particles which are structurally defined.

SEE OR SEARCH CLASS:

106, Compositions: Coating or Plastic, appropriate subclasses, for a composition provided for in that class (106) which may include structurally defined particles or fibers; and see II Note under the class definition of that class (106) with regard to the elements, per se, for use in such composition; and see (4) Note above.

149, Explosive and Thermic Compositions or Charges, subclasses 21 and 110+ for an explosive or thermic composition or charge including structurally characterized particles.

252, Compositions, subclass 378 for a composition containing exfoliated or intumesced material.

427, Coating Processes, appropriate subclasses, for coating a rod, strand fiber or particle, or for coating with flakes, granules or particulate matter.

442, Fabric (Woven, Knitted, or Nonwoven Textile or Cloth, etc.), for a textile*, cloth* or fabric* in which the strands, fibers, or other constituents* thereof are structurally defined, as set forth therein.

492, Roll or Roller, for a roll, per se, not elsewhere provided for, especially subclass 48 for a roll cover, per se, and see the notes thereunder.

520, Synthetic Resins or Natural Rubbers, for a synthetic resin or natural rubber composition containing an ingredient which may be coated, impregnated, or has a defined size or shape.

521, Synthetic Resins or Natural Rubbers, subclasses 50+ for a synthetic resin composition (or single layer) in cellular form.

588, Hazardous or Toxic Waste Destruction or Containment, subclasses 249 through 260 for permanent containment of hazardous or toxic waste.

358 This subclass is indented under subclass 357. Product comprising a substantially U-shaped groove or slot.

(1) Note. Many of the patents herein disclose weatherstripping of strand* form having a U-shaped groove in which a pane of glass usually fits.

SEE OR SEARCH THIS CLASS, SUBCLASS:

85+, especially subclasses 89 and 95 for a channel shaped product including pile structure and acting as window pane channel.

359 This subclass is indented under subclass 357. Product comprising a fiber which is approximately 1 1/2 to 2 inches in length, (i.e., the usual staple length).

(1) Note. A claim which recites a "staple" fiber or "staple" length fiber will be classified in this subclass; a claim which calls for "short" or other similar term, which, by sole disclosure, is staple length will be classified in this subclass.

360 This subclass is indented under subclass 359. Product comprising a plurality of staple length fibers which are intertangled and which are bonded only at their cross-over or contact points.

SEE OR SEARCH THIS CLASS, SUBCLASS:

197, for a textile* or cloth* product comprising knitted strands*, filaments* or strips* and which are bonded to each other only at selected points.

221, for a web* or sheet* comprising fibers* or filaments which are bonded at their intersections only.

292.1+, for a composite web* or sheet* in which one component comprises fibers* which are structurally defined in some manner and which may be bonded at their intersections only.

361 This subclass is indented under subclass 359. Product in which the staple length fiber is permeated, saturated, or covered with an extraneous material.

362 This subclass is indented under subclass 359. Product in which the longitudinal direction of the staple length fiber follows a curvilinear or multi-directional path.

SEE OR SEARCH THIS CLASS, SUBCLASS:

369+, for a fiber of greater than staple length which is nonlinear.

363 This subclass is indented under subclass 357. Product comprising a grain or small bit of material (i.e., particle*) which is a flat platelet of any of the group of mineral silicates commonly called "mica"*

SEE OR SEARCH THIS CLASS, SUBCLASS:

454, for a nonstructural laminate including mica* in nonflake form (i.e., as ground or pulverized).

SEE OR SEARCH CLASS:

106, Compositions: Coating or Plastic, subclasses 415+ for a product provided for in that class (106) embodying shells, scales, micaceous material or similar lamellate material.

364 This subclass is indented under subclass 357. Product comprising a rod, strand, fiber or filament*.

(1) Note. A solid rod, fiber or strand product of uniform circular cross-section and extending in a straight line without deviation will not be considered for placement in this or an indented subclass. However, such a product, when coated will be considered as sufficient for subclass 375 even in the absence of structure. An impregnated fiber, strand, strand-portion, etc., unless qualified by structure (e.g., size, shape, etc.) will be considered as composition for the appropriate class (e.g., 106, 520, etc.; see (4) Note in subclass 357 and (2) Note below.

(2) Note. A patent to a rod, strand or fiber distinguished solely by its composition will be placed in the appropriate composition class. See particularly Class 106, Compositions: Coating or Plastic; see

also; Class 520, Synthetic Resins or Natural Rubbers, for a synthetic resin or natural rubbers filament. For the purpose of patent placement in this subclass, the recitation of molecular orientation or crystalline structure in a fiber is not regarded as a structural limitation and patents claiming such fibers with no additional structure will be placed in the appropriate composition class. Also, a patent for a fiber where the presence of structure or the degree thereof is a mere manifestation of the composition will be placed in the appropriate composition class. A fiber defined in terms of its properties or other descriptors (e.g., tensile strength, per cent elongation) is not considered a structurally defined fiber.

(3) Note. A patent directed to a rod, wire or filament of indeterminate length will be placed in Class 204, Chemistry: Electrical and Wave Energy, where a process under the definition of Class 204 appears to be a necessary limitation to the product. A product of a 157.15+ process will be classified as in the (2) Note above.

(4) Note. A patent for a strand consisting of woven constituents is provided for in subclasses 383+ of Class 139, Textiles: Weaving and a patent claiming a strand consisting of knitted constituents is provided for in subclasses 169+ of Class 66, Textiles: Knitting; however, a patent for a composite strand including either of such strands in combination with another unlike constituent (e.g., knit core with woven sheath) will be placed in this subclass 364 where not provided for elsewhere.

(5) Note. A patent for a composite rod or strand reciting or claiming at least one twisted or twined constituent will be placed in Class 57, Textiles: Spinning, Twisting, or Twining, but where said constituent is a preformed coiled spring element, the patent will be placed in subclasses 369+ below. See section VI Relation to Certain Other Classes, in the main class definition, reference to Class 57 for guide lines relating to placement of “yarns”, “cords”, etc.

(6) Note. Excluded from this and indented subclasses are patents to one or more transparent elongated structures (e.g., rods, fibers or pipes) used to transmit light rays from one point to another within the confines of their outer surface, and involving internal reflections or modal transmission.

(7) Note. See (1) Note in the definition of subclass 36 for the distinction between a hollow strand, fiber or filament and a conduit type article.

SEE OR SEARCH THIS CLASS, SUBCLASS:

34.1+, for an article* (e.g., 3 dimensional or of substantial size) which is a cylinder or a conduit open at both ends and disclosed to conduct fluids and, disregarding the size, may be similar to a hollow fiber, filament or strand.

544+, for corresponding metallic* stock-material*.

SEE OR SEARCH CLASS:

2, Apparel, subclasses 256+ for strand or elongated rod-like element used as a stiffening or stay means for garments.

8, Bleaching and Dyeing; Fluid Treatment and Chemical Modification of Textiles and Fibers, appropriate subclasses, for a monofilament of fiber which is the product of an operation provided for in that class.

14, Bridges, subclass 22 for cable peculiar to the suspension of a bridge.

15, Brushing, Scrubbing, and General Cleaning, subclasses 208+ for an implement which includes rods, strands or fibers having particular shape, size or arrangement.

19, Textiles: Fibers Preparation, appropriate subclasses for drawing, carding or other fiber preparations involving no twisting.

26, Textiles: Cloth Finishing, appropriate subclasses for treatment of the constituents of a textile subsequent to fabrication of the product to obtain a better marketable condition.

28, Textiles: Manufacturing, appropriate subclasses for methods and apparatus for the mechanical interengagement of fibers.

52, Static Structures (e.g., Buildings), subclasses 720.1+ for an elongated rigid member specialized to use as or in in situ erected structures.

57, Textiles: Spinning, Twisting, and Twining, subclasses 200+ for a product reciting twisted or twined rod(s), strand(s) or fiber(s) and see (5) Note above.

66, Textiles: Knitting, subclasses 169+ for a knitted product not elsewhere provided for.

84, Music, subclasses 199 and 297+ for a musical instrument string.

87, Textiles: Braiding, Netting, and Lace Making, subclasses 1 through 13 for a product embodying braided, knotted or intertwisted strands.

104, Railways, subclass 240 for railway traction cable.

106, Compositions: Coating or Plastic, appropriate subclasses for a structurally defined fiber strand as provided for in that class (106) and see II under the class definition note of that class (106).

112, Sewing, subclass 400 for a sewn strand (e.g., strand with stitches along its length).

131, Tobacco, subclass 331 for stock material specified as being a filter and of indeterminate shape (e.g., mass) or approximating the shape (e.g., coil, tube, cylinder, rod) of the article or appliance with which it is intended to be used, requiring no further treatment than tearing or cutting to proper size; stock material of any other shape, recited so that some shape modification is required is classified in Class 428.

139, Textiles: Weaving, subclasses 383+ for a web or sheet claimed in terms of the particular arrangement or material(s) of the warp and/or weft; subclass 395, for a woven chenille strand; subclasses 457+ for method and apparatus for weaving a tubular or circular fabric; and subclasses 420+ for a woven textile possessing a certain texture resulting from the nature or form of the strands or fibers employed in the manufacture thereof.

204, Chemistry: Electrical and Wave Energy, especially subclasses 450+ for electrophoretic or electro-osmotic processes. Also, see the (3) Note above.

205, Electrolysis: Processes, Compositions Used Therein, and Methods of Preparing the Compositions, subclasses 76+, 138+, and 152+ for a rod, wire, or filament formed by electrolytic coating processes.

249, Static Molds, subclass 213 for tie rods.

260, Chemistry of Carbon Compounds, appropriate subclasses, for a rod, strand or fiber, by name only, of a particular composition provided for in that class (260) and see (1) and (2) Notes of this subclass.

277, Seal for a Joint or Juncture, subclasses 536+ for a dynamic seal of fibrous composite construction contained or compressed by a gland member in a packing box, subclass 937 for a seal made of a composite material including glass particles or filament, or subclas 938 for a seal made of a composite material including cartoon or graphite particle or filament.

313, Electric Lamp and Discharge Devices, subclass 357 for an electrode in the form of a rod.

385, Optical Waveguides, appropriate subclasses for light transmitting rod, fiber, or pipe, of the type provided for in that class.

401, Coating Implements With Material Supply, appropriate subclasses for a rod or strand which is adapted to coat or leave a mark on a surface by virtue of its shape (e.g., point or taper, etc.), whether or not the rod or strand itself is coated. For example, a pencil having a paper wrapping therearound is in Class 401, whereas a similar rod or strand with a paper wrapping, but with no coating implement feature would be proper for subclass 377 below.

431, Combustion, subclass 325 for a strand structure employed as a burner wick.

474, Endless Belt Power Transmission Systems or Components, particularly subclasses 237+ for a friction drive belt which may be formed of or include strand structure.

606, Surgery, subclasses 228+ for filamentary material used as a suture or ligature. See section VIA5 of this definition.

365 This subclass is indented under subclass 364. Product which comprises textile*, cloth* or fabric*.

(1) Note. The textile*, cloth of fabric may be in the form of a tubular cover for a core or may itself be covered with another material or may be the only element claimed, in which case it must be structurally defined.

SEE OR SEARCH THIS CLASS, SUBCLASS:

222, for a sheet* or web* of textile*, cloth* or fabric* which is, or has a component* which is, helically wound either around itself or another component*.

SEE OR SEARCH CLASS:

442, Fabric (Woven, Knitted, or Non-woven Textile or Cloth, etc.), for textile*, cloth*, or fabric* in the form of a sheet* or web*.

366 This subclass is indented under subclass 364. Product in which the rod, strand, filament or fiber comprises the element boron in either the free or combined state.

(1) Note. Excluded from this subclass is a rod, strand, filament or fiber which is composed of steel or other alloy or an intermetallic compound having boron as a constituent thereof; such products of sheet or other alloy will be found in subsequent subclasses on other features (see especially subclasses 379+). This subclass 366 is intended to be the locus for the high modulus boron filament or fiber.

SEE OR SEARCH CLASS:

423, Chemistry of Inorganic Compounds, subclasses 276+ for a process of making free boron or a compound thereof or the product, per se, which does not claim structure enough to be placed in this Class 428.

367 This subclass is indented under subclass 364. Product in which carbon, as either the element or as a compound thereof, comprises the rod, strand or fiber or filament or is present as a covering on a rod, strand, fiber or filament of another material.

(1) Note. Excluded from this subclass is a product in which the carbon or its compound is a minor constituent of steel or other alloy; fibers, filaments, etc., of steel or other alloy will be found in other subclasses below on other features (see subclasses 379+). This subclass 367 is intended to be the locus for the high modulus carbon fiber or filament.

SEE OR SEARCH CLASS:

423, Chemistry of Inorganic Compounds, subclasses 414+ for a process for making free carbon or a compound thereof or the product, per se, (e.g., rod, fiber, etc.) where no significant structure is recited.

368 This subclass is indented under subclass 367. Product in which the free carbon or the compound thereof forms a covering for a rod, strand, filament or fiber.

369 This subclass is indented under subclass 364. Product wherein the longitudinal axis of the rod, strand or fiber, considered as a unit, follows a curvilinear or multi-directional path.

SEE OR SEARCH THIS CLASS, SUBCLASS:

32, for a 3 dimensional object part of which has a winding or coil or braid of a strand, usually for decorative purposes, as for example, on the hilt or scabbard of a sword.

37, for a product comprising a spirally flatwound strand or strip, e.g., in the form of a braided rug.

108, for a product in which strands or strand-portions in a plurality of layers* are angularly related to one another and in which the longitudinal axis of the strands or strand-portions follows a multi-directional or curvilinear path.

222, for a composite* web* or sheet* in which one of the components* is helical.

292.1+, for a composite* web* or sheet* in which one of the components* comprises structurally defined fibers which may be nonlinear in extent (e.g., crimped or coiled).

362, for a fiber of staple length which is nonlinear in extent.

SEE OR SEARCH CLASS:

8, Bleaching and Dyeing; Fluid Treatment and Chemical Modification of Textiles and Fibers, appropriate subclasses, for a fiber or monofilament with nonlinear shape wherein said shape is disclosed as resulting from one or more of the bleaching, dyeing, fluid treatment or chemical modification operations provided for in that class (8); subclass 114.5 for a product with differential creping, and subclass 117 for a wool-like or crinkled article.

140, Wireworking, appropriate subclasses, for a methods or apparatus for the working of wire products, especially subclass 105 which is directed to the forming of crimps or kinks in wire or wire fabrics.

174, Electricity: Conductors and Insulators, subclass 69 for a conduit, cable or conductor which is nonlinear to render the product extensible; and subclasses 108+ for a conductive strand or other elongated conductive element applied spirally about one or more insulated conductors.

289, Knots and Knot Tying, subclass 1.2 for a strand(s) with a portion(s) thereof intertwined and forming or cooperating to form a knot.

313, Electric Lamp and Discharge Devices, subclass 341 for a filament with a nonlinear axis designed to be heated by the flow of electric current, and especially indented subclass 344 for a coiled filament.

370 This subclass is indented under subclass 369. Product in which the filament of fiber is made up of at least two different compositions of matter, (e.g., polyester-cotton, cellulose-polyamide) (polyamides of different compositions, etc.).

371 This subclass is indented under subclass 369. Product in which the curvilinear or multi-directional path comprises a helix- i.e., made by a point rotating around an axis while advancing along the axis.

SEE OR SEARCH THIS CLASS, SUBCLASS:

370, for a product comprising a composite or bifilar or collateral filament in the form of a spiral or helix or coil.

372 This subclass is indented under subclass 364. Product having in addition particulate matter (e.g., chips, powder, granules, small grains, etc.) which is defined in some structural manner (e.g., shape, size, arrangement, etc.).

(1) Note. See definition of subclass 357 for meaning and intent of "structurally defined".

SEE OR SEARCH THIS CLASS, SUBCLASS:

87, for a pile or nap type product including particulate matter which may be structurally defined.

143+, for a sheet* or web* which has a continuous but nonuniform surface finish caused by particulate matter which may be structurally defined.

195+, for a web* or sheet* which has a discontinuous or differential coating, impregnation or bond and which may contain particulate matter, and especially subclasses 206+ for a product as above and also having as part thereof particulate matter which may be structurally defined.

292.1+, and 323+, for a composite* web* in which one component* includes structurally defined fibers which may be small enough to qualify for parti-

cles and structurally defined particles, respectively.

306+, for a composite* web* or sheet* in which a component* includes particles which may or may not contain adhesive.

403+, for coated particulate matter.

SEE OR SEARCH CLASS:

106, Compositions: Coating or Plastic, appropriate subclasses, especially subclasses 400+ for composition of particles, grains, etc., as provided for therein.

132, Toilet, subclass 93 for a strand impregnated with an abrasive material (e.g., dental floss).

139, Textiles: Weaving, subclass 425 for a woven fabric including metal particles in the texture.

174, Electricity: Conductors and Insulators, appropriate subclasses for a conduit, cable or conductor insulated with powdered or granular material.

451, Abrading, subclasses 526+ for a strand including an abrasive material.

373 This subclass is indented under subclass 364. Product comprising a plurality of fibers or filaments which have been simultaneously formed by being forced through separate openings in a die or spinneret, and in which (1) the individual fibers or filaments are side-by-side with a connecting web therebetween or (2) one fiber or filament is substantially enclosed in the other (sheath-core type).

(1) Note. The fibers are usually of different composition so that on cooling or heating the crimp or nonlinearity may be controlled due to the differing rates of expansion or contraction.

SEE OR SEARCH THIS CLASS, SUBCLASS:

370, for a composite, bifilar, conjugate or collateral fiber or filament whose longitudinal axis follows a curvilinear or multidirectional path (e.g., helical, crimped, etc.).

374 This subclass is indented under subclass 373. Product in which the axis of the fibers or filaments do not coincide, i.e., one is laterally spaced from the other.

375 This subclass is indented under subclass 364. Product in which the rod, strand, fiber or filament is (1) partially or completely covered with a material or (2) is structurally defined as set forth in the definition of subclass 357 and, in addition, may also be partially or completely saturated or permeated with a material or adhered to another material or strand, fiber or filament or rod or contain a central portion.

(1) Note. A patent directed to a product including a wrapped constituent* will be placed in this subclass; however, a patent directed to such product will be placed in subclasses 139+ of Class 57, Textiles: Spinning, Twisting, and Twining, where it is claimed that said constituent is wrapped progressively along the length thereof (i.e., coiled).

(2) Note. A patent for a strand formed by a knitting or weaving operation and coated, impregnated or covered after completion of said operation will be placed in this subclass.

(3) Note. A patent directed to a strand including a twisted or twined constituent and further including an encircling sheath formed by an extrusion process will be placed in this subclass (375).

(4) Note. The term “sized” or “sizing” will be construed as a coating and will be placed in this group of subclasses, unless it is clear than only an impregnation is intended.

(5) Note. Attention is directed to section V of the class definition: Guidelines for Placement of Patents Having no Significant Structure. A patent having a claim to a coating material and also a claim to a product of a rod, strand or fiber coated with this material and in which the product claim includes details of the coating material, is classified in the appropriate composition or compound class in the

absence of recited structure (e.g., dimension, shape, etc.). Cross-referencing into this Class 428 of such patents from the appropriate compound or composition class (e.g., Class 106, Class 260, etc.) has been kept to a minimum. For a complete search, the other pertinent class should be considered.

SEE OR SEARCH THIS CLASS, SUBCLASS:

98+, and 221+, especially the subclasses so entitled for a coated or impregnated web* or sheet* comprising rods, strands or fibers or for coated rods, strands or fibers forming elements* of a web or sheet.

615+, for corresponding metallic* stock-material*.

SEE OR SEARCH CLASS:

8, Bleaching and Dyeing; Fluid Treatment and Chemical Modification of Textiles and Fibers, for a fiber product of a process provided for in that class and especially subclasses 114+ and 115.51+ for a product of the chemical modification of a textile or organic fiber; subclass 115.6 for such product which further includes a coating, size or lubricant, and subclasses 495+ for a fiber dyed and impregnated.

57, Textiles: Spinning, Twisting, and Twining, 258+ especially subclasses 258+ for a coated or impregnated rod or strand comprising a twisted or twined constituent (as claimed) and including such product regardless of whether the constituents thereof are coated or impregnated before, during or after assembly thereof to form the product.

87, Textiles: Braiding, Netting, and Lace Making, subclass 1 for a strand product of that class, whether the constituents thereof are coated or impregnated before, during or after the braided strand with a core. Also See section VI A 1 a (3) of this definition.

132, Toilet, subclass 93 (dental floss), for strand structure impregnated with an abrasive material(s).

174, Electricity: Conductors and Insulators, for a product which conducts electricity and is coated or covered with a dielectric, where the product includes (1) some structure of the conductor specifically designed to conduct electricity or (2) some structure of the dielectric especially designed to space conductor either from ground or from a device of different electric potential.

204, Chemistry: Electrical and Wave Energy, subclasses 450+ for electrophoretic or electro-osmotic processes. Also, see section VI, B, of the class definition of Class 428.

277, Seal for a Joint or Juncture, subclass 537 for a dynamic seal of composite construction, having a distinct sheath or covering, contained or compressed by a gland member in a packing box, or subclasses 652+ for a static contact seal for other than internal combustion engine, or pipe, conduit or cable having a distinct sheath or covering.

313, Electric Lamp and Discharge Devices, subclass 345 for a coated filament or electrode; and subclasses 352+ for a cored, coated or laminated composite electrode.

376 This subclass is indented under subclass 375. Product having a central or inner portion which contains one or more voids.

(1) Note. The void or voids may be either coextensive or noncoextensive with the longitudinal extent of the central portion.

SEE OR SEARCH THIS CLASS, SUBCLASS:

34.1+, for a tube type or cylindrical article* open at both ends, similar in form, but of substantially greater size than the hollow products of this subclass 376.

377 This subclass is indented under subclass 375. Product having (1) a central or inner portion which is wound about itself or (2) a layer* or material wound or wrapped about a central or inner portion, both (1) and (2) being in the form of a spiral or helix.

SEE OR SEARCH THIS CLASS, SUBCLASS:

32, for an article* having as an ornamental portion thereof, a strand which is wound, woven or braided around a part.

37, for a spirally flat-wound strand or strip (e.g., braided rug, etc.).

222, for a web* or sheet* including a helical component*.

SEE OR SEARCH CLASS:

57, Textiles: Spinning, Twisting, and Twining, subclasses 200+ for similar strand products in which there is a layer of material wound or wrapped about a core portion but in which the core or wrapping also is twisted or plied or doubled, as required by the class definition thereof.

242, Winding, Tensioning, or Guiding, subclasses 159+ for a storage package of material made particular by the manner by which it is wound.

378 This subclass is indented under subclass 375. Product comprising a plurality of rods, strands, fibers or filaments, each of which is (1) permeated or saturated with, (2) covered with or (3) bonded to, an extraneous material.

379 This subclass is indented under subclass 375. Product in which either (1) the fiber, strand, filament or rod or (2) a coating or impregnation or bond or core therefor, comprises a free metal* or an alloy or a compound of a metal.

(1) Note. The metal compound may be organometallic.

(2) Note. See (4) Note of subclass 375 above for placement of patents having no significant structure.

SEE OR SEARCH THIS CLASS, SUBCLASS:

621+, for stock-material* having adjacent metal components in addition to a nonmetal (including a metal compound) component.

380 This subclass is indented under subclass 379. Product in which the fiber, filament, rod or strand has a least two distinct coating layers thereon.

(1) Note. At least the substrate or one of the plural coating layers must comprise a metal, alloy or a compound of the metal.

381 This subclass is indented under subclass 380. Product in which at least one of the coating layers comprises free metal or an alloy.

382 This subclass is indented under subclass 380. Product in which at least one of the coating layers contains a latex* from a natural source.

383 This subclass is indented under subclass 380. Product in which the plural coating layers comprise man made resins* or polymers*, each of which differs from at least one other in composition (e.g., polyester, polyamide, polyolefin, etc.).

384 This subclass is indented under subclass 380. Product in which at least one of the plural coating layers comprises (1) a fused mixture of the silicates of the alkali and alkaline earth or heavy metals, (2) fused or burned clay* or (3) the compound formed by the union of oxygen and a metal.

SEE OR SEARCH THIS CLASS, SUBCLASS:

389, and 390, for a rod, strand, fiber or filament with a coating containing silicic material or a metallic oxide.

385 This subclass is indented under subclass 379. Product in which the substrate is a free metal and the coating therearound comprises a composition which affects the seam formed when two pieces of metal are joined by heating or melting the substrate and permitting it to flow into the joint between the metals (i.e., fusion welding).

(1) Note. When welding is performed, the molten metal tends to oxidize and therefore the seam or joint is weakened. The coating composition around the weld rod metal tends to prevent this oxidation by (1) generating a gaseous atmosphere

around the fusion bond, (2) producing a slag which will not oxidize, etc. It is in this manner that the coating "affects" the weld to form a better joint or seam.

SEE OR SEARCH CLASS:

75, Specialized Metallurgical Processes, Compositions for Use Therein, Consolidated Metal Powder Compositions, and Loose Metal Particulate Mixtures, subclass 302 for a welding rod or electrode defined by composition only and without significant structure.

219, Electric Heating, subclasses 145.1+ and 146.1+ for similar welding rods defined by structure and not merely as a coated rod or by the composition.

386 This subclass is indented under subclass 385. Product in which the coating contains the element titanium in either its free or combined state.

387 This subclass is indented under subclass 385. Product in which the coating contains the element silicon in either its free or combined state.

SEE OR SEARCH THIS CLASS, SUBCLASS:

390, for a rod, strand fiber or filament having a coating which does not modify a weld, but which may contain silicic material.

388 This subclass is indented under subclass 379. Product comprising a substrate of the (1) fused mixture of the silicates of the alkali and alkaline earth or heavy metals (glass composition) or (2) free element silicon or its compounds, such substrate being in the form of a fiber or filament, and a coating of a free metal or alloy coating on the substrate.

SEE OR SEARCH THIS CLASS, SUBCLASS:

392, for a fiber or filament of glass, which may be structurally defined or which may have a coating thereon of other than free metal or an alloy.

389 This subclass is indented under subclass 379. Product comprising a fiber, rod, filament or strand of any character having thereof a layer* of metal* or a compound thereof.

SEE OR SEARCH THIS CLASS, SUBCLASS:

381, and 384, for a rod, strand, fiber or filament having plural coatings, at least one of which may include a metal or alloy thereof, or metal oxide, respectively.

390 This subclass is indented under subclass 379. Product comprising a rod, fiber, filament or strand and a layer* thereof of natural latex* or synthetic rubber*, free silicon or a compound thereof or the carbohydrate known as cellulose (whether natural or modified).

SEE OR SEARCH THIS CLASS, SUBCLASS:

384, for a rod, strand, fiber or filament having plural coatings, at least one of which contains a silicic material (e.g., glass or ceramic, etc.).

387, for a metal rod, strand, fiber or filament which is coated with a weld modifying composition including a silicic material.

391 This subclass is indented under subclass 375. Product in which the coating comprises (1) a compound similar to hydrocarbon in which tetravalent silicon replaces the carbon atom as Si H_4 monosilane or silicomethane, (2) an elastomer in which the carbon linkages of a polymerized hydrocarbon are replaced by Si-O linkages or (3) any of a class of compounds that contain alternate silicon and oxygen atoms in either a linear structure (as $H_3Si(O\ Si\ H_2)_nO\ Si\ H_3$) or a cyclic structure as $H_2(Si\ O)_n$ and that may also contain methyl, phenyl or other organic radicals in place of some or all of the hydrogen atoms and are made by hydrolysis of chlorosilanes or alkoxy-silanes.

SEE OR SEARCH THIS CLASS, SUBCLASS:

405, for particulate matter which is coated with silane, silicone or siloxane.

429, for a silicone, silane or siloxane layer next to quartz or glass.
447, for a layer of silicone, silane or siloxane next to a layer of any other composition.

SEE OR SEARCH CLASS:
442, Fabric (Woven, Knitted, or Non-woven Textile or Cloth, etc.), subclasses 81 and 99 for a fabric which has an organosilicon coating or impregnation thereon.

392 This subclass is indented under subclass 375. Product comprising a substrate of fiber or filament which is coated or is structurally defined - which fiber or filament is not a natural product, but is man made.

SEE OR SEARCH THIS CLASS, SUBCLASS:
388, for a glass or silicic fiber or filament with a coating of free metal thereon.
415, 417 and 426+, for a nonstructural laminated product in which one layer is glass or quartz.

SEE OR SEARCH CLASS:
442, Fabric (Woven, Knitted, or Non-woven Textile or Cloth, etc.), subclass 180 for a coated or impregnated glass fiber fabric.

393 This subclass is indented under subclass 392. Product in which the synthetic fiber or filament comprises cellulose (e.g., rayon, viscose, etc.).

394 This subclass is indented under subclass 392. Product in which the synthetic fiber or filament comprises a man-made resin or polymer.

SEE OR SEARCH THIS CLASS, SUBCLASS:
383, for a rod, strand, fiber, filament or fiber containing plural coatings, each being a different polymer or resin.
405, 412, 413+, 421+, 423+, 430+, 435, 436+, 441+, 447, 451, 458+, 460, 461, 473.5, 474.4+, 480+, 494+, and 500+ for nonstructural laminated products, in which one layer* comprises a synthetic resin or polymer.

SEE OR SEARCH CLASS:
442, Fabric (Woven, Knitted, or Non-woven Textile or Cloth, etc.), subclasses 164+ for a coated or impregnated synthetic organic fiber fabric (e.g., nylon, etc.).

395 This subclass is indented under subclass 394. Product in which the resin or polymer comprises (1) a polymeric compound containing amide groups through which the monomers are linearly linked and includes the reaction products of polyamines and polybasic acids or the polymer of amino acids (e.g., nylon, peptides and protein) or (2) a polymeric compound containing ester groups through which the monomers are linearly linked to one another.

(1) Note. Urea-aldehyde is not considered to be a polyamide or polyimide for purposes of classification in this schedule and will be found in the subclass providing for condensation products of aldehyde and ketone.

SEE OR SEARCH THIS CLASS, SUBCLASS:
327, for a product comprising a composite web or sheet including a second component which contains structurally defined particles of polymetic or resinous material which may be polyamide or polyester particles.
430+, 435, 458, 473.5, 474.4, and 480+, for a nonstructural laminate in which one layer includes polyamide, polyimide or polyester.

396 This subclass is indented under subclass 375. Product in which the fiber, strand, rod or filament is either partially or completely saturated with an extraneous material.

(1) Note. Excluded from this subclass is a rod, strand, fiber or filament which is merely impregnated with or has associated therein or therewith a material without any specified indication as to the depth of impregnation or other structure; such a combination is classified on the basis of the composition e.g. for Classes 106, 520, etc.

397 This subclass is indented under subclass 364. Product claimed in terms of the particular shape of a section transverse to the longitudinal axis thereof or wherein the particular shape or arrangement of the constituent thereof is claimed and wherein the transverse section is other than circular and of uniform diameter.

(1) Note. See (1) Note under subclass 364 for placement of a coated rod, strand, fiber, etc.

(2) Note. A rod, filament or fiber with surface deformities, e.g., ridges, furrows, etc., is included under this definition and will be found in subclass 400.

SEE OR SEARCH THIS CLASS, SUBCLASS:

373+, for a conjugate or composite or collateral fiber or filament of side-by-side or other nonuniformly circular configuration.

SEE OR SEARCH CLASS:

8, Bleaching and Dyeing; Fluid Treatment and Chemical Modification of Textiles and Fibers, for the process provided for in that class for preparing a fiber or monofilament of particular cross section; subclass 112 for the process of treating a strand or fiber to improve its felting properties; subclasses 114+ for a process of treating a rod or strand to produce an ornamental effect (e.g., creping, etc.); subclasses 115.51+ for the process of chemically modifying a fiber and the corresponding product and subclass 130.1 for the process of swelling or plasticizing a synthetic strand or fiber and the corresponding product.

106, Compositions: Coating or Plastic, appropriate subclasses for a structurally defined rod or fiber product provided for in that class (106).

174, Electricity: Conductors and Insulators, for a conduit, cable or conductor of noncircular cross-section.

474, Endless Belt Power Transmission Systems or Components, particularly subclasses 237+ for a friction drive belt which may be in the form of a strand having a particular cross section.

398 This subclass is indented under subclass 397. Product containing one or more voids which are either coextensive or noncoextensive with the longitudinal extent of the product.

SEE OR SEARCH THIS CLASS, SUBCLASS:

34.1+, for a similar, hollow rod or strand which however is of much larger size usually and is disclosed as being used to conduct a fluid.

376, for a rod, strand, fiber or filament (1) coated, (2) impregnated or (3) with core wherein the constituents of the product form one or more tubular passageways lengthwise therein.

SEE OR SEARCH CLASS:

57, Textiles: Spinning, Twisting, and Twining, appropriate subclasses for a tubular rod or strand wherein at least one constituent thereof is either twisted or wound, as claimed.

87, Textiles: Braiding, Netting, and Lace Making, subclass 9 for a tubular braided strand.

138, Pipes and Tubular Conduits, for a tubular product which has claimed structure relating the product to its use as a conduit; e.g., specific inner and outer wall composition, (particular seams, etc.). In the absence of claimed limitations as to wall structure, such a tubular stock material is classified in Class 428.

139, Textiles: Weaving, subclasses 387+ for a woven tubular strand or fabric.

313, Electric Lamp and Discharge Devices, subclass 356, for a tubular or hollow sleeve type electrode.

399 This subclass is indented under subclass 397. Product wherein the cross section of a rod, strand or fiber changes along the length thereof either dimensionally or in shape.

SEE OR SEARCH CLASS:
411, Expanded, Threaded, Driven, Headed, Tool-Deformed, or Locked-Threaded Fastener, subclasses 442+ for a string of connected impact driven fasteners (e.g., nails, staples, etc.).

400 This subclass is indented under subclass 397. Product wherein an exposed face thereof or region immediately adjacent said face, has a particular claimed physical property or structure.

(1) Note. A product including grooves extending longitudinally thereof is included in this subclass.

(2) Note. Included under this definition is a variation in the composition in the surface region of the product.

SEE OR SEARCH THIS CLASS, SUBCLASS:
141+, for a web* or sheet* having small indentations or crevices in a surface thereof.
372, for a rod, strand or fiber having structurally defined particulate matter.
409+, for a web, sheet or block having a particular surface property or characteristic.

SEE OR SEARCH CLASS:
106, Compositions: Coating or Plastic, appropriate subclasses for a delustered product provided for in that class (106).

401 This subclass is indented under subclass 364. Product, which is claimed to be of specified size in at least one direction or whose constituents are of specified size (absolute or relative).

SEE OR SEARCH THIS CLASS, SUBCLASS:
220, for a web* or sheet* whose overall physical dimension is recited.
332+, for a composite* web or sheet* wherein the physical dimension of a component* or constituent* is claimed.

SEE OR SEARCH CLASS:
106, Compositions: Coating or Plastic, appropriate subclasses for a dimensioned rod or fiber product provided for in that class (106).

402 This subclass is indented under subclass 357. Product comprising structurally defined or coated small grains or bits of matter.

(1) Note. A patent reciting a coated or encapsulated material with claimed utility (ies) or solely disclosed utility is classified with the composition classes. A similar patent with (a) multiply disclosed utilities or (b) undisclosed utility is classified in this Class 428, subclasses 402.2+. However, in the latter two cases (a) and (b) above, when the coating or encapsulating material stabilizes a compound against physical or chemical degradation, classification is appropriate for and subject to the limitations set forth in one of the compound (element) classes. The order of superiority of the composition classes are listed below under SEARCH CLASS. Those classes with an asterisk after the description are not composition classes but deemed appropriate for further search.

(2) Note. The recitation of any term, e.g., encapsulation, microencapsulation, sphere, microsphere, capsule, microcapsule, etc. which describes or gives evidence for a microencapsulated product is adequate for placement herein. Lacking such description or evidence the particle will be considered a “coated” particle and therefore appropriate in this class, subclass 403. For example, a patent reciting the encapsulated product of eugenol with dextrinized corn starch is sufficient for placement in this subclass. However, a “clathrate” of the some product would be classified in Class 536, subclass 103. (See (3) Note, below on clathrates and intercalates).

(3) Note. Clathrates and intercalates (inclusion compounds), per se, are classified hierarchically and subject to the limitations set forth in the compound (ele-

ment) classes based both on the encapsulant and encapsulate. See the section, LINES WITH OTHER CLASSES, subsection D. CLATHRATES AND INTERCALATES, for examples.

SEE OR SEARCH CLASS:

504, Plant Protecting and Regulating Compositions, (see subclass 100 for seeds coated with agricultural chemicals other than fertilizers.)

424, Drug, Bio-Affecting and Body Treating Composition, subclasses 16+ for coated, impregnated or layered feature.

426, Food or Edible Material: Processes, Compositions, and Products, subclasses 89+.

71, Chemistry: Fertilizers, (see subclass 64.11 for slow release forms.)

149, Explosive and Thermic Compositions or Charges, subclasses 3+ for a coated component.

430, Radiation Imagery Chemistry: Process, Composition, or Product Thereof, subclass 138 for a microcapsule.

252, Compositions, subclasses 9+.

44, Fuel and Related Compositions, see, for example, subclass 6, coated or impregnated material.

148, Metal Treatment, subclasses 22+ for composition and 31.5 for a coated stock-material.

252, Compositions, (special uses or functions) to subclass 194.

502, Catalys, Solid Sorbent, or Support Therefor: Product or Process of Making, subclasses 60+ and 527.11-527.24.

252, Compositions, (special uses or functions), subclass 478 and those following, except subclasses 302+, 363.5, 372+, and 378.

8, Bleaching and Dyeing; Fluid Treatment and Chemical Modification or Textiles and Fibers, subclass 526 for a dye in specified form other than mere powder.

429, Chemistry: Electrical Current Producing Apparatus, Product, and Process, for pertinent subclass(es) as determined by schedule review.

204, Chemistry: Electrical and Wave Energy, for pertinent subclass(es) as determined by schedule review.

106, Compositions: Coating or Plastic, for a filler or pigment for a coating composition which may include size or structure of the constituent particles or fibers which recitation does not serve to exclude from Class 106. See especially subclasses 31.14 (invisible inks), 36, 84, 97+, 103, 108, 117, 235, 241, 251, 253+, 266, 272, 275, 276, 280, 281+, 288+, and 308 (coated material) in Class 106. See also Relation to Material or Composition Classes, above in definition.

501, Compositions: Ceramic, for pertinent subclass(es) as determined by schedule review.

51, Abrasive Tool Making Process, Material, or Composition, e.g., subclass 295 for impregnating or coating an abrasive tool.

75, Specialized Metallurgical Processes, Compositions for Use Therein, Consolidated Metal Powder Compositions, and Loose Metal Particulate Mixtures, (Alloys).

420, Alloys or Metallic Compositions, for pertinent subclass(es) as determined by schedule review.

75, Specialized Metallurgical Processes, Compositions for Use Therein, Consolidated Metal Powder Compositions, and Loose Metal Particulate Mixtures, (rest of class).

520, Synthetic Resins or Natural Rubbers, see, for example, Class 523, subclass 161, invisible ink composition and 200+ for a composition containing product in the form of surface-coated, impregnated, encapsulated or surface-modified materials.

260, Chemistry of Carbon Compounds, subclasses 709+.

208, Mineral Oils: Processes and Products, for pertinent subclass(es) as determined by schedule review.

252, Composition, (nonspecial uses or functions i.e., subclasses 302+, 363.5, 372+, and 378).

585, Chemistry of Hydrocarbon Compounds, (mixture subclasses).

118, Coating Apparatus, subclass 303 for apparatus for spray coating particulate material.*

264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclasses 4+ for processes or encapsulating liquid core materials.*

427, Coating Processes, subclasses 213.3+ for processes of encapsulation solid core materials.*

402.2 Microcapsule with fluid core (includes liposome):

This subclass is indented under subclass 402. Subject matter wherein the microcapsule is comprised of a Fluid core (at ambient temperatures) encapsulated by a solid wall or shell.

(1) Note. Liposomes are formed of mesomorphic walls (i.e., a state of matter intermediate between crystalline solid and normal isotropic liquid) and are classified here based on their solid characteristics.

SEE OR SEARCH CLASS:

264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclasses 4.1+, for the process of encapsulating a liquid.

521, Synthetic Resins or Natural Rubbers, in particular subclass 76, preparing a cellular product or precursor thereof utilizing a stated ingredient which is a solid particle containing a fluid encapsulated therein. See also (4) Note under subclass 50 in conjunction with this.

402.21 Solid-walled microcapsule from synthetic polymer:

This subclass is indented under subclass 402.2. Subject matter wherein the microcapsule wall contains at least one synthetic polymer (see Class 520, subclass 1 for a definition to synthetic polymer).

(1) Note. The chemical modification of a natural product does not constitute a synthetic resin, e.g., the reaction of cellulose with toluene diisocyanate, etc. However, the addition of certain specified reactants, e.g., a polyol to the cellulose and a diisocyanate would constitute a synthetic resin. See Class 527, subclass 100 for a definitive explanation.

402.22 Addition polymer from unsaturated monomers only:

This subclass is indented under subclass 402.21. Subject matter wherein the synthetic polymer is derived only from ethylenically unsaturated reactants.

(1) Note. The term "ethylenically unsaturated" includes acethlenic-type compounds but excludes homocyclic aromatic compounds, i.e., benzene-type compounds. Compounds, such as pyridine, diazine, pyrrole would be ethyienically unsaturated.

402.24 Microcapsule with solid core (includes liposome):

This subclass is indented under subclass 402. Subject matter wherein the microcapsule contains solid core, e.g., a microcapsular opacifier containing titanium dioxide encapsulated with urea-formaldehyde polymer shell, etc.

(1) Note. Liposomes are formed of mesomorphic walls (i.e., a state of matter intermediate between crystalline solid and normal isotropic liquid) and are classified here based on their solid characteristics.

SEE OR SEARCH CLASS:

427, Coating Processes, subclasses 213.3+ for solid encapsulation, e.g., microencapsulating a solid with a microcapsule wall derived from a synthetic polymer, etc. However, if the core material is disclosed to be an expanding (blowing) agent see Class 521, subclass 50, (4) Note for limitations to those subclasses.

403 This subclass is indented under subclass 402. Product comprising small pieces of matter, granules, grains or the like with a coating thereon.

SEE OR SEARCH CLASS:

75, Specialized Metallurgical Processes, Compositions for Use Therein, Consolidated Metal Powder Composi-

tions, and Loose Metal Particulate Mixtures, subclasses 255+ for a loose composition containing metal particles.

106, Compositions: Coating or Plastic, appropriate subclasses, especially subclasses 400+ for a compositions including coated particulate matter provided for in that class.

404 This subclass is indented under subclass 403. Product in which the particulate matter comprises (1) silicon or (2) a material containing a metal* from Group IV B, V B or VI B of the periodic system, known as refractory metals and consisting of Ti, Zi, Hf, V, Nb, Ta, Cr, Mo and W.

(1) Note. The silicon or the refractory metal* can be present as either the free element or as a compound containing the element.

(2) Note. The silicic or refractory material can be present as either the base* (substrate*) or the coating.

405 This subclass is indented under subclass 404. Product in which the coating comprises (1) a compound similar to hydrocarbons in which the tetravalent silicon replaces the carbon atom, as Si H4- monosilane or silicomethane, (2) an elastomeric in which the carbon linkages of a polymerized hydrocarbon are replaced by Si-O linkages or (3) any of a class of compounds that contain alternate silicon and oxygen atoms in either a linear structure (such as H_3 Si (O Si H_2) O Si H $_3$) or a cyclic structure as $H_2(Si\ O)_n$ and that may also contain methyl, phenyl or other organic radicals, in places of some or all of the hydrogen atoms and are made by hydrolysis of chlorosilanes or alkoxysilanes.

SEE OR SEARCH THIS CLASS, SUBCLASS:

391, for a rod, strand, fiber or filament which is coated with a silane, siloxane or silicone.

429, for a laminated structure comprising a layer of glass* or quartz* next to silane, siloxane or silicone.

447, for a laminated product including a layer of silane, siloxane, or silicone.

SEE OR SEARCH CLASS:

442, Fabric (Woven, Knitted, or Nonwoven Textile or Cloth, etc.), subclasses 81 and 99 for a fabric which has organosilicon coating or impregnation thereon.

406 This subclass is indented under subclass 404. Product in which the particulate matter comprises pieces of the fused mixture commonly known as glass* and as defined in subclass 426.

(1) Note. The glass* particles or spheres may have been enlarged or foamed or may contain channels or voids.

SEE OR SEARCH THIS CLASS, SUBCLASS:

312, for a composite product in which one component is either porous or cellular and may comprise glass* foam.

404, for particulate matter in which glass* is present as the coating thereon.

407 This subclass is indented under subclass 403. Product in which the particulate matter comprises a man-made resin or polymer, either as the substrate* or as the coating.

SEE OR SEARCH THIS CLASS, SUBCLASS:

394+, for a rod, strand, fiber or filament make of a synthetic resin or polymer and having a coating thereon.

SEE OR SEARCH CLASS:

442, Fabric (Woven, Knitted, or Nonwoven Textile or Cloth, etc.), subclasses 164+ for a coated or impregnated synthetic organic fiber fabric (e.g., nylon, etc.).

408 This subclass is indented under the class definition. Product which comprises a web*, sheet* or shape retaining body of free carbon in any of its allotropic forms and which is saturated, permeated or covered with extraneous material.

(1) Note. Typical of the products found herein is a carbon brush for an electric

motor or a carbon rod for an arc lamp, which rod may be permeated or impregnated with an extraneous material and not structurally defined as set forth in the definition of subclass 357.

SEE OR SEARCH THIS CLASS, SUBCLASS:

367+, for a structurally defined or coated fiber, rod, strand, filament of carbon.

409 This subclass is indented under the class definition. Product comprising a web*, sheet* or block* in which an exposed area of the product or the region immediately adjacent thereto has a particular claimed physical property or structure.

(1) Note. The surface characteristic must not be that of a web, sheet or component* of different composition applied as a layer* or coating or laminate; the characteristic must be due to treatment of the surface of a material of generally the same composition throughout so that if the superficial outermost area is removed, the result is a product of the same composition, but of different surface characteristic.

(2) Note. Treatment of the surface by a chemical (e.g., etching, etc.) or by wave or other form of energy which yields the desired characteristic is placed in this or the indented subclass; however treatment by a coating which reacts with and forms a layer of totally different composition is excluded and will be found below on other features, such as composition of the layers, (see especially subclass 420).

SEE OR SEARCH THIS CLASS, SUBCLASS:

40+, for a product comprising a plurality of separable parts, at least one of which must be removed to expose an adhesive coating.

141+, for a web or sheet which has a continuous but nonuniform or irregular finish which may be a coating and need not be on the outermost surface. The main difference between subclasses 141 and 409+ is that in the latter, the surface characteristic is that obtained by treating or modifying the surface without adding a layer. The superficial surface must have the same composition as the remainder of the sheet; in the former the finish may be due to a coating. In subclasses 141+ the surface must be textured or irregular; in subclasses 409+ the surface can be smooth but must have some characteristic not present in the remainder, e.g., smoothness, hardness, temper, etc.

410 This subclass is indented under subclass 409. Product comprising the composition commonly known as glass* in which the surface has been treated and so altered to yield a physical proper different from the portion adjacent thereto.

(1) Note. Examples of surface modifications are: tempering or strengthening, crystallizing, etc.

411.1 This subclass is indented under the class definition. Stock material comprising plural layers* or surfaces, adhered or cohered to each other, identified by the composition of the layers*, and not elsewhere provided for.

(1) Note. Each and every layer disclosed, whether considered in the document as a base* layer* or an adhesive layer, is construed to be a separate layer for purposes of placement in this or indented subclasses. No distinction is made in consideration of whether a layer is an adhesive, prime coat, thin film or base*; each is considered to be an individual layer. For a detailed explanation of the principles used as the basis of classification of the group, i.e., the "layer-pair" concept see section IV of this definition of this class (428).

(2) Note. A claimed pair of layers is read in the light of the disclosure. A patent claiming merely metal* adhered to glass*, and disclosing that the metal* and glass* are actually bonded by an epoxy* resin, is placed on the basis of the two pairs, glass* -epoxy* and metal* -epoxy*. Thus, the "original" copy of this patent is placed in subclass 415 and

a copy is cross-referenced in subclass 416.

(3) Note. In each of the indented subclasses, the layer is identified by an ingredient, sole or otherwise; i.e., such layer includes, but need not be solely composed of, the material by which the layer is identified.

(4) Note. A disclosure of a layer* which is comprised of copolymerized material is placed in the first appearing subclass in the schedule which provides for the polymer, e.g., a patent claiming a laminate of a copolymer of styrene (addition polymer from unsaturated monomers*) and alkyd* (polyester*) is placed under polyester*. A patent to a laminate including a layer containing mixtures is placed as an original on the basis of the ingredient provided for in the first appearing subclass and cross-referenced in all other subclasses which provide for the other ingredients.

(5) Note. In this group of subclasses, the "original" copy of a patent claiming several pairs will be placed in the first appearing subclass providing for a claimed pair and other copies cross-referenced to all other subclasses providing for other claimed pairs. In the case of disclosed but not claimed pairs, only those disclosures which add to the broad general concept of a particular subclass will be cross-referenced to that subclass. As an example of this discretionary use of cross-references, a disclosure of phenol-formaldehyde* next to paper* (admittedly old) would not be cross-referenced in subclass 531, but a disclosure of a resin comprising 83% phenol-formaldehyde and 17% cresol-formaldehyde next to paper would be cross-referenced in subclass 531 (provided it was not known that a disclosure of the specific layer* pair already existed therein).

Briefly, the basic principles which determine placement of the original copy of a patent in this or an indented subclass are: (1) only claimed subject matter is relied upon when comparing coordinate "first-line indent" subclasses (e.g., subclasses 98 and 411) of this class; (2) such original copy will be placed in the first-occurring "first-line indent" subclass which provides for the claimed subject matter; however, where such "first-line indent" subclass has a further indented subclass which specifically provides for more specific claimed subject matter, the original copy will be placed in the further indented subclass; (3) an original copy containing, for example, two claims where one such claim is provided for in a subclass which is indented under a superior subclass which provides for the other claim, will be placed in such superior and generic subclass (since it is first occurring) and crossed into the indented subclass; (4) as between coordinate subclasses (e.g., subclasses 435 and 436) which are indented under the same "first-line indent" subclass, the original copy of a patent will be placed in the first-occurring of the coordinate subclasses which provides for the claimed subject matter. Once placement of the original copy of a patent has been determined, a cross-reference copy of the patent is mandatory in every subclass in this group (411+) (or in any other class) which provides for other separately claimed subject matter. Cross-reference copies may be placed in any subclass where the disclosed subject matter is considered to render the patent a useful reference, for example in subclasses superior to subclass 411 in this class.

(6) Note. To be considered a "laminate" for inclusion in this class at least two layers of surfaces must be indicated by name or composition. The laminate may include surfaces which are bonded solely by molecular attraction as e.g., vinylidene chloride to another material or to a second layer of vinylidene chloride, provided an interface can be detected. Where a particular "layer" of the composite is identified in the claims in only functional terms, e.g., only as a "substrate", the patent is classified as an original in the first appearing subclass provided for a material named in the claims, and may be cross-referenced to

those subclasses providing for materials only disclosed and not claimed; see the rule of thumb elaborated on in (5) Note. above.

(7) Note. Exceptions to the general scheme of the nonstructural schedule are: (a) urea-aldehyde is not classified with polyamide* but with aldehyde or ketone condensation product*. See notes to subclasses 474+ and 524. (b) a patent directed to a laminate of pyroxylin* (which usually is plasticized with camphor and/or castor oil) is placed as a cellulosic* or broadly carbohydrate* layer rather than natural oil or natural gum*. See notes to subclasses 497 and 532. (c) an acetal of polyvinyl alcohol is both an addition polymer from unsaturated monomers* and an aldehyde condensation product* and consequently is classified in the subclass which appears first in the schedule. A patent to a laminate including a layer of an acetal of polyvinyl alcohol will be placed in the appropriate first appearing subclass directed to an addition polymer from unsaturated monomers* or to an aldehyde or ketone condensation* product as explained in (4) Note above.

(8) Note. All layers or surfaces as claimed in the patents of these subclasses (411+), are coextensive. If a layer is claimed in terms of sized relative to another layer, such limitation is regarded as structural, so that the patent will be placed in the appropriate subclass above; (see especially subclasses 44+, 77+, 189+, 195+, and 212+).

(9) Note. In the subclasses directed to papers, indented under this subclass (411 nonstructural laminates), the product is a laminate which incorporates as the paper* layer a finished paper* product. For purposes of placement in the indented subclasses, the term paper*, standing alone and without further elaboration, in a patent will be construed to mean a self-sustaining layer of cellulosic* fibers*, as exemplified by paper, per se, cardboard, pasteboard or water laid wood pulp. This class (428) has the same residual relation to Class 162, Paper Making and Fiber Liberation, as it has to other stock material classes. Thus, a patent to a paper-including laminate, produced by a process provided for in Class 162, will be placed in that class.

(10) Note. A patent to a web, sheet or single-layer product, of material described in nonstructural terms, is placed in the appropriate material or composition class. This rule holds even where a single layer of one material is completely impregnated with a second material,with only a few exceptions. (See subclasses 539.5, 540 and 541 of this class 428). Relative thereto, alloys and other compositions of free metal are found in Classes 75 and 420; Inorganic chemical compounds and nonmetal elements such as carbon fabric are found in Class 423; hydrocarbon products are found in Class 585; Synthetic Resins are found in Classes 520-529; other organic (carbon) compounds are found in Class 260 and its daughter Classes 530-570; other coating and plasted compositions are in Classes 106 and 501; medicinal or biocidal or hair or skin treating compostions are found in Class 424; compositions of general use are found in Class 252. The superiority of these and other material or composition classes is set forth in (2) Note under the class definition of Class 106.

SEE OR SEARCH THIS CLASS, SUBCLASS:

77+, 189+, 195+, and 614, for a laminate comprising layers that are not coextensive and see (8) Note above.

85+, for a laminate including a layer a layer or component* which has a pile or nap or flock surface.

98+, for a laminate stock material that is claimed in terms of its structure.

221+, for a laminate stock material that is claimed in terms of the structure of one of its components* or textile*.

304.4+, for a composite having a porous layer.

615+, for a composite having two or more adjacent layers of free metal.

SEE OR SEARCH CLASS:

33, Geometrical Instruments, subclass 567 for plural layer product disclosed solely for use as a gauge block*.

106, Compositions: Coating or Plastic, appropriate subclasses for a coating composition.

156, Adhesive Bonding and Miscellaneous Chemical Manufacture, subclasses 325+ for the use of a particular adhesive in laminating process.

162, Paper Making and Fiber Liberation, especially subclasses 100+ for a laminate including paper*, which laminate is produced by a process provided for in that class (162); and see Search Class note under IV in the class definition of this class (161) and (9) Note above.

252, Compositions, appropriate subclasses, for a single layer or mass of a composition of general use; and especially subclasses 9+ for a lubricant; subclass 62 for an insulating composition; subclass 62.3 for a barrier layer composition; subclass 478 for an X-ray shield composition; and subclasses 301.2+ for a fluorescent or phosphorescent composition; and see (12) Note above.

403, Joints and Connections, appropriate subclasses for a connection or seal between two members at substantially a single locus, where the structure or shape (e.g., ring, flange, angular) relation of at least one of the members is specifically recited.

427, Coating Processes, appropriate subclasses for the method of coating a base* with a nonpreformed layer.

442, Fabric (Woven, Knitted, or Nonwoven Textile or Cloth, etc.), appropriate subclasses for a laminate including a fabric layer.

520, Synthetic Resins or Natural Rubbers, for a resin or natural rubber adhesive or composition containing same used as an adhesive in a laminate, and see the (11) Note, above.

412 This subclass is indented under subclass 411.1. Product in which at least one layer contains linearly recurring diester linkages of carbonic acid and a polyhydric alcohol.

(1) Note. The linearly recurring ester linkages of carbonic acid require that at least a single carbonyl oiety (C=O) be linked to two different oxygen atoms, each of which is further linked to carbon atoms. The term "diester" used here, does not include the reaction product of two carbamic acid molecules with a glycol (i.e., the term does not include polyurethane*). The reaction product of carbamic acid and a glycol is considered a poly (amido ester*) and a patent claiming a laminate comprising such a product will be placed in subclass 190 below.

SEE OR SEARCH THIS CLASS, SUBCLASS:

423+, for a laminate comprising a layer including poly (amido ester*) e.g., esters of carbamic acid; and see (1) Note above.

413 This subclass is indented under subclass 411.1. Product in which one layer contains a resin produced by polymerization of an epoxide (e.g., vic-alkylene oxide or epichlorohydrin) with a dihydric compound.

(1) Note. Epoxy resins are usually thermosetting characterized by good adhesiveness, resistance to chemicals and are generally made from a diphenol, as bis phenol A.

(2) Note. A patent in which a layer of a laminate is disclosed as an "epoxy", epoxy resins, or the glycidyl ether of bis phenol A will be placed in this or an indented subclass.

SEE OR SEARCH CLASS:

156, Adhesive Bonding and Miscellaneous Chemical Manufacture, subclasses 60+, for a process of laminating using an epoxy resin as adhesive; and especially subclass 330.

520, Synthetic Resins or Natural Rubbers, appropriate subclasses for an epoxy resin or natural rubber, per se, or for an epoxy resin containing composition.

414 This subclass is indented under subclass 413. Product comprising at least three layers, the epoxy ether resin layer lying between the other two.

415 This subclass is indented under subclass 414. Product in which one of the other two layers contains glass* or quartz*.

SEE OR SEARCH THIS CLASS, SUBCLASS:
426, for definition of glass or quartz.

416 This subclass is indented under subclass 414. Product in which one of the other two layers contains free metal*.

417 This subclass is indented under subclass 413. Product in which the layer, contiguous with the epoxy ether layer, contains quartz* or glass* (both defined in subclass 426).

418 This subclass is indented under subclass 413. Product in which the layer, contiguous with the epoxy ether layer, contains metal*.

419 This subclass is indented under subclass 411.1. Product in which one layer comprises a compound which contains a plurality of C-S-C linkages in the molecular chain.

(1) Note. A layer containing polysulfide synthetic rubber (e.g., the reaction product of dihaloalkylene and alkali polysulfides) is considered a polythioether and a patent claiming a laminate of such a layer will be placed in this subclass.

420 This subclass is indented under subclass 411.1. Product comprising three layers in which the inner layer is disclosed as the inter-reaction product of the other layers.

SEE OR SEARCH CLASS:
148, Metal Treatment, subclasses 240+ for processes of reactive coating of a metal substrate wherein an external agent combines with a component in the metal substrate to form a coating thereon containing a component of the metal substrate.

421 This subclass is indented under subclass 411.1. Product in which a layer includes an (addition polymer from unsaturated monomers*) which contains fluorine.

(1) Note. The fluorinated addition polymer is usually obtained from fluoro-alkenes and fluoro-halo alkenes e.g., difluoro-chloro-ethylene.

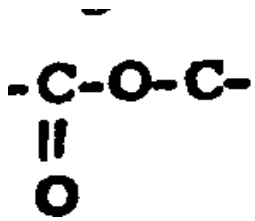
(2) Note. Patents claiming a laminate containing a layer of a halogenated addition polymer from unsaturated monomers, where no fluorine is present, will be placed in the appropriate subclasses directed to addition polymer from unsaturated monomers.

SEE OR SEARCH THIS CLASS, SUBCLASS:
442, 463 and 514, e.g., and other appropriate subclasses below for a laminate containing a layer of a halogenated addition polymer from unsaturated monomers, where no fluorine is present.

422 This subclass is indented under subclass 421. Product in which the unsaturated monomers are completely saturated with halogen.

(1) Note. Two or more halogens may be present in the polymer, at least one of which must be fluorine.Thus, examples of polymers found in this subclass are: tetrafluorethylene, trichlorofluorethylene, etc.

422.8 Of polyisocyanurate:
This subclass is indented under subclass 411.1. Product in which one layer contains a polymer derived from an isocyanurate, that is, a cyclic trimmer of an isocyanate having the generalized formula



(1) Note. If the connecting chain between the isocyanurate rings also contains ester linkages, the patent should be cross-referenced to subclasses 423.1+.

423.1 Of polyamidoester (polyurethane, polyisocyanate, polycarbamate, etc.):
This subclass is indented under subclass 411.1. Product in which one layer contains a polymer characterized by both amide and ester linkages in the polymer chain in any combination or ration.

(1) Note. A patent claiming a laminate including a layer containing polyurethane, or the polymerized reaction product of isocyanates and alcohols, will be placed in this subclass or its indents.

(2) Note. Polyamidoester includes Polyimidoester.

(3) Note. The term polyisocyanate is sometimes used to designate polyurethanes and it is not always clear what is intended by the term in some patents. The use of any of the following terms: polyisocyanate, polyurethane, urethane resin, polycarbamate or the disclosure of the reaction products of disocyanate with any glycols, diamines, amino alcohols, amides, or esters will be deemed a sufficient disclosure of polyamidoester or polyisocyanate to meet the definition of this subclass.

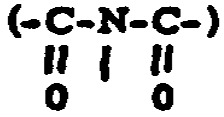
SEE OR SEARCH THIS CLASS, SUBCLASS:
71, 158+ and 310+, for other products containing a foamed material as a component thereof, especially urethane.
474.4+, for a product having a layer of polymer comprised solely of amide linkages in the polymer chain, including a polyamide with ester linkages in a side chain.
480+, for a product having a layer of polymer comprised solely of ester linkages in the polymer chain, including a polyester having amide linkages in a side chain.

SEE OR SEARCH CLASS:
442, Fabric (Woven, Knitted, or Non-woven Textile or Cloth, etc.), subclasses 59+ for a coated or impregnated fabric which may include a polyamidoester coating.

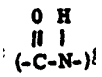
423.3 Next to second layer of polyamidoester:
This subclass is indented under subclass 423.1. Product in which a second contiguous layer is a polyamidoester.

423.4 Next to animal skin or membrane:
This subclass is indented under subclass 423.1. Product in which a second contiguous layer is an animal skin or membrane, e.g., leather, etc.

423.5 Next to polyamide (nylon, etc.):
This subclass is indented under subclass 423.1. Product wherein a second contiguous layer is a polymer characterized by linkages, as illustrated below.



423.7 Next to polyester (polyethylene terephthalate, etc.):
This subclass is indented under subclass 423.1. Product in which a second contiguous layer is a polymer characterized by linkages, as illustrated below.



423.9 Next to natural rubber:
This subclass is indented under subclass 423.1. Product wherein a second contiguous layer is a natural rubber.

424.2 Next to addition polymer of ethylenically unsaturated monomer:
This subclass is indented under subclass 423.1. Product wherein a sec contiguous layer is a polymer derived from an ethylenically unsaturated monomer, and characterized by a hydrocarbon backbone.

424.4 Ester monomer type (polyvinylacetate, etc.):
This subclass is indented under subclass 424.2. Product wherein the addition polymer contains ester groups not in the polymer chain, such as dependent acetate groups.

424.6 Halide monomer type (polyvinyl chloride, etc.):
This subclass is indented under subclass 424.2. Product wherein the addition polymer contains atoms of chlorine, bromine, or iodine such as chlorinated polyethylene, polychloroprene, etc.

SEE OR SEARCH THIS CLASS, SUBCLASS:
421+, for a fluoropolymer next to a polyamidoester.

424.7 Nitrile monomer type (polyacrylonitrile, etc.):
This subclass is indented under subclass 424.4. Product wherein the addition polymer contains nitrile moieties, e.g., polyacrylonitrile, etc.

424.8 Hydrocarbon polymer (polyethylene, polybutadiene, etc.):
This subclass is indented under subclass 424.2. Product wherein the addition polymer contains only carbon and hydrogen.

425.1 Next to cellulosic:
This subclass is indented under subclass 423.1. Product wherein a second contiguous layer is cellulosic (e.g., wood, paper, cellophane, etc.).

425.3 Next to aldehyde or ketone condensation product (phenol-aldehyde, etc.):
This subclass is indented under subclass 423.1. Product wherein a second contiguous layer is the condensation product of an aldehyde or ketone.

425.5 Next to silicon-containing (silicone, cement, etc.) layer:
This subclass is indented under subclass 423.1. Product wherein a second contiguous layer contains silicon in any form.

425.6 Quartz or glass:
This subclass is indented under subclass 425.5. Product wherein the polyamidoester layer is adjacent to a quartz or glass layer.

425.8 Next to free metal:
This subclass is indented under subclass 423.1. Product wherein the layer adjacent the polyamidoester layer is a free metal layer.

425.9 Particulate metal or metal compound-containing:
This subclass is indented under subclass 423.1. Product wherein the polyamidoester layer contains a particulate metal or a metal compound, e.g., metal oxide, etc.

SEE OR SEARCH THIS CLASS, SUBCLASS:
900, for a collection of patents directed to stock materials having a magnetic feature.

SEE OR SEARCH CLASS:
252, Compositions, subclasses 62.51+ for a magnetic composition and nonstructured products, e.g., "a tape," etc., having a magnetic coating on an unnamed substrate.

426 This subclass is indented under subclass 411.1. Product in which at least one layer contains fused silica (i.e., quartz), or a mixture of (1) fused silica, and (2) alkali and alkaline silicates, commonly known as glass.

(1) Note. The glass may be in the form of fibers or as a fiber glass mat.

(2) Note. Such materials as waterglass, isinglass and plexiglass are not considered as glass.

(3) Note. Vitreous enamel or vitreous ceramic, per se, is considered to be glass.

SEE OR SEARCH THIS CLASS, SUBCLASS:

38, for stained glass elements in an aperture or frame.

49, for a unilayer of plural glass sections extending in both lateral and longitudinal directions.

174+, for corrugated fiber glass web or sheet.

312, 317, 325, 392, 406+, 415, and 417, as appropriately entitled, for other products containing glass, in the form of particles, a layer, foam, or fibers.

SEE OR SEARCH CLASS:

65, Glass Manufacturing, appropriate subclasses, for glass making.

403, Joints and Connections, appropriate subclasses, for a connection or seal between two members at substantially a single locus where the structure or shape (e.g., ring, flange, angular relationship, etc.) of at least one of the members is specifically recited, and one of the members is glass or quartz.

442, Fabric (Woven, Knitted, or Non-woven Textile or Cloth, etc.), appropriate subclasses for a glass fiber fabric in a laminate and subclass 180 for a coated or impregnated glass fiber fabric.

501, Compositions: Ceramic, subclasses 11+ for glass compositions capable of forming lamina.

427 This subclass is indented under subclass 426. Product in which a second layer contiguous with the quartz or glass layer contains boron in either its free or chemically combined state.

SEE OR SEARCH THIS CLASS, SUBCLASS:

366, for a rod*, strand* filament* or fiber* including boron or a compound thereof either as a coating or as the fiber*.

902, for a cross-reference art collection of high modulus filaments* or fibers* which may be of or include boron.

428 This subclass is indented under subclass 426. Product in which a second layer contiguous with quartz or glass contains the element silicon in either the free or chemically combined state.

(1) Note. A patent claiming a second glass layers in which there is a difference in the glasses (e.g., composition or physical properties) such as to indicate two different glass layers, will be placed in this subclass.

429 This subclass is indented under subclass 428. Product in which the second layer comprises (1) a compound similar to a hydrocarbon in which the tetravalent silicon replaces the carbon atom, as SiH_4n monosilane or silicomethane, (2) an elastomeric in which the carbon linkages of a polymerized hydrocarbon are replaced by Si-O linkages or (3) any of a class of compounds that contain alternate silicon and oxygen atoms in either a linear structure (such as H_3Si (O Si H_2)n O Si H_3) or a cyclic structure as H_2(Si O)n and that may also contain methyl, phenyl or other organic radicals in place of some or all of the hydrogen atoms and are made by hydrolyses of chlorosilanes or alkoxy-silanes.

430 This subclass is indented under subclass 426. Product in which a layer contiguous with quartz or glass contains polyester*.

431 This subclass is indented under subclass 430. Product in which some of the acid and/or the alcohol moieties, from which the polyester is derived are at least trifunctional, permitting a cross-linking of the linear polyester chain.

(1) Note. A patent claiming a laminate including a polyester layer derived from an acid(s), which is at least tri-basic, or from an alcohol(s), which is at least trihydric or in which either the poly basic acid or polyhdric alcohol is unsaturated, will be placed in this subclass.

432 This subclass is indented under subclass 426. Product in which a layer adjacent the glass or quartz contains a metal* either in the free or combined state.

433 This subclass is indented under subclass 432. Product in which the metal* is in the free or elemental state or in the form of an alloy*.

SEE OR SEARCH THIS CLASS, SUBCLASS:
630+, for a glass laminate which includes a pair of adjacent metal layers.

434 This subclass is indented under subclass 433. Product in which the metal* comprises silver, gold, platinum, pallodium, mercury, iridium, rhodrium, ruthernium or osmium, that is, those metals* which are not easily oxidizable and are recognized as the "noble" metals*.

435 This subclass is indented under subclass 426. Product in which the layer adjacent the quartz or glass contains a polyamide* or polyimide*.

(1) Note. This subclass provides for placement of patents claiming glass glued to other surfaces or adhered directly to nylon* or protein*, e.g., a gelatin* layer.

(2) Note. Urea-aldehyde is not considered polyamide for purposes of classification is this schedule and patents claiming glass-to-urea-aldehyde laminates are placed in subclass 436.

SEE OR SEARCH THIS CLASS, SUBCLASS:
436, for quartz or glass next to a layer containing a urea-aldehyde condensation* product; and see (2) Note above.

436 This subclass is indented under subclass 426. Product in which a layer Next to the quartz or glass contains an aldehyde or ketone condensation product*.

437 This subclass is indented under subclass 436. Product in which a layer contiguous with the quartz or glass contains the di-ether reaction product of an aldehyde with the hydroxy groups of an (addition polymer from unsaturated monomers)*, e.g., acetal of polyvinyl alcohol.

(1) Note. The usual source of polyvinyl alcohol is a hydrolyzed polyvinyl ester. Such terms as the reaction of an aldehyde with polyvinyl acetate -- or the reaction of an aldehyde with hydrolyzed polyvinyl acetate -- will be sufficient to place a patent in this subclass.

438 This subclass is indented under subclass 426. Product in which a layer Next to the quartz or glass contains a cellulosic* material.

(1) Note. The majority of patents claiming safety glass in which cellulosic material is an inner layer, or in which glass is bonded to an inner layer by cellulosic material, will be placed in this and the indented subclass.

(2) Note. Patents claiming significant polarizing structure or composition of a layer or laminate will be placed in Class 359, Optical: Systems and Elements, subclasses 483+. Patents claiming significant optical filtering structure will be placed in Class 359, subclasses 885+.

SEE OR SEARCH THIS CLASS, SUBCLASS:
34, for coextensive light-transmissive sheets* which are hermetically sealed at their edges and confine a gas therebetween.
38, for a laminated plural layer* sheet* including glass, but which has an opaque frame or border over at least a portion.

SEE OR SEARCH CLASS:
359, Optical: Systems and Elements, subclasses 483+ for a laminated polarizer and subclasses 885+ for optical filters. See (2) Note above.

439 This subclass is indented under subclass 438. Product in which the cellulosic material has been esterfied by reaction with an acid.

(1) Note. A patent claiming glass laminated to nitro-cellulose or cellulose nitrate, cellulose chromate or cellulose sulfate, as

well as cellulose acetate, butyrate etc., will be placed in this subclass.

440 This subclass is indented under subclass 426. Product in which a layer Next to the quartz or glass contains natural rubber*, natural gum*, natural oil*, rosin*, wax* or (bituminous or tarry residue*).

(1) Note. A patent claiming a laminate containing a layer comprising a synthetic rubber will usually be found in the subclass directed to an addition polymer from unsaturated monomers* or the indented subclasses or, in the case of polysulfide synthetic rubber, will be found in the polythioether subclass.

SEE OR SEARCH THIS CLASS, SUBCLASS:

419, for polysulfide synthetic rubber next to glass and see (1) Note above.

441+, for synthetic rubber next to glass; and see (1) Note above.

441 This subclass is indented under subclass 426. Product in which a layer Next to quartz or glass contains an (addition polymer from unsaturated monomers*).

(1) Note. A patent claiming a layer of glass next to one of vinyl, acrylic or a polyalkylene compound or isoprene or neoprene rubber, will be placed in this or the indented subclass.

442 This subclass is indented under subclass 441. Product in which the addition polymer is an ester, halide or nitrile.

(1) Note. The addition polymer may be derived from monomers which include esters, halides or nitriles or the addition polymer may be treated to introduce ester, halide or nitrile radicals.

(2) Note. The ester moieties are pendant, i.e., in a long chain polymer, the ester groups branch out from the main chain and the chain is not linked through a plurality of ester linkages. If the chain were linked through the ester groups, as in alkyd or polyethylene terephthalate, a patent claiming such laminate would be placed in subclass 430 or 431.

(3) Note. Patents claiming partially hydrolyzed polyvinyl ester next to glass will be placed here. If, however, the ester is completely hydrolyzed the patent will be placed in subclass 441 unless an acetal if formed therefrom, in which latter case the patent would be placed in subclass 437. The word "hydrolyzed", without qualification in a patent will be deemed to mean completely hydrolyzed.

SEE OR SEARCH THIS CLASS, SUBCLASS:

421, for glass next to a fluorinated addition polymer of unsaturated monomers.

430, for glass next to a layer of units linked together through the ester moities; and see (2) Note above.

437, for glass next to an acetal of hydrolyzed polyvinyl alcohol; and see (3) Note above.

441, for glass next to a completely hydrolyzed polyvinyl ester; and see (3) Note above.

443 This subclass is indented under subclass 411.1. Product in which at least one layer includes a fibrous mineral of a magnesium, calcium or iron silicate (e.g., amphibole, serpentine and anthophyllite, etc.).

(1) Note. For the purposes of this subclass, the following terms, as well as the word "asbestos*" itself, are deemed to be definitive of a layer as asbestos - containing: uralite, tremolite actinolite crocidolite, chrysotil amosite or pyrozene.

SEE OR SEARCH CLASS:

442, Fabric (Woven, Knitted, or Nonwoven Textile or Cloth, etc.), subclass 137 for a coated or impregnated asbestos fabric and appropriate subclasses for a laminate comprising fabric made from inorganic fibers such as asbestos.

444 This subclass is indented under subclass 443. Product in which there is a layer of metal* in the free state in addition to the layer of asbestos*.

445 This subclass is indented under subclass 443. Product in which there is a layer of cellulosic* material (either natural or modified) in addition to the layer of asbestos*.

446 This subclass is indented under subclass 411.1. Product with at least one layer having as an ingredient a material which contains the element silicon in any form, i.e., elemental or in a compound.

(1) Note. A product comprising an alloy or an intermetallic compound which has silicon as an element thereof is excluded from this definition and will be found in subclasses 457+.

(2) Note. This subclass and its indents, especially subclass 454 will take a patent to a nonstructural laminate claiming clay*, cement*, sand* or vitreous* substances which do not fit the definition of glass*, but are silicon containing.

(3) Note. A patent claiming mica* (as a constituent of a second layer) will normally be considered to claim mica flakes (flat) and as such is considered to define structure of such flakes and will be placed in subclass 324. If the mica is disclosed as ground or pulverized and is a constituent of a second layer, and structurally defined, such a patent will also be placed in subclass 324. If no structure of the ground or pulverized mica recited, a laminate containing such mica will be placed in subclass 454.

(4) Note. Special exception in regard to silicon and metallic stock material in Class 29. For purpose of Class 29, subclasses 180+ silicon is considered to be a metal. See also class definition, Glossary, for nonstructural terms or Composition-definition of Metal and Relation to Other Classes, B, reference to Class 29.

SEE OR SEARCH THIS CLASS, SUBCLASS:

144+, and 149+, for a product comprising a continuous, but nonuniform or irregular surface made by a layer of particulate matter which could be a silicon containing material such as crushed stone, etc., or as a coating on particulate matter.

204, 206+, 308, 331, 387, 404+, and 428, for other products containing silicon in elemental or compound form, either in the form of particulate matter, (e.g., pigment, etc.) or as glass, or as a coating or impregnant, as appropriately titled.

SEE OR SEARCH CLASS:

106, Compositions: Coating or Plastic, subclasses 39+ for silicon-containing material adapted to form a lamina.

427, Coating Processes, appropriate subclasses, especially those having "silicon", "glass" or "vitreous" in their title for the process of making a silicon containing multi-layer product by a process of that class.

526, Synthetic Resins or Natural Rubbers, subclass 279 for a silicon-containing resin, per se.

528, Synthetic Resins or Natural Rubbers, subclasses 10 through 43 for silicon-containing resin, per se.

447 This subclass is indented under subclass 446. Product in which the silicon comprises (1) a compound similar to hydrocarbons in which the tetravalent silicon replaces the carbon atom, as $Si\ H_4$ monosilane or silicomethane, (2) an elastomeric in which the carbon linkages of a polymerized hydrocarbon are replaced by Si-O linkages, or (3) any of a class of compounds that contain alternate silicon and oxygen atoms in either a linear structure (such as $H_3Si(O\ Si\ H_2)nO\ Si\ H_3$) or a cyclic structure as $H_2(Si\ O)n$ and that may also contain methyl, phenyl or other organic radicals in place of some or all of the hydrogen atoms and are made by hydrolysis of chlorosilanes or alkoxysilanes.

SEE OR SEARCH THIS CLASS, SUBCLASS:

391, 405, and 429, for other products in which silane, silicone or siloxane is contained in a coating or impregnant.

SEE OR SEARCH CLASS:

442, Fabric (Woven, Knitted, or Non-woven Textile or Cloth, etc.), subclass 81 and 99 for a fabric which has an organosilicon coating or impregnation thereon.

448 This subclass is indented under subclass 446. Product in which the silicon containing layer lies in between and adjacent to two other layers.

(1) Note. In many of these patents, the intermediate layer comprises sodium silicate which acts as an adhesive.

449 This subclass is indented under subclass 448. Product in which each of the other layers comprises paper*.

SEE OR SEARCH THIS CLASS, SUBCLASS:

453, for a product in which sodium silicate is next to a cellulosic layer and may act as an adhesive therefor.

450 This subclass is indented under subclass 446. Product in which a layer, contiguous with the silicon-containing layer, contains metal*.

SEE OR SEARCH CLASS:

148, Metal Treatment, subclasses 33+ for electrically semiconductive stock under the Class 148 definition which is essentially homogeneous and has at least two contiguous layers differing in the number of unbound electrons and/or differing in energy gap levels, which exhibit a junction between the layers.

257, Active Solid-State Devices (e.g., Transistors, Solid-State Diodes), appropriate subclasses for such devices, wherein the solid-state material is typically a semiconductor.

438, Semiconductor Device Manufacturing: Process, particularly subclasses 570+ for methods of making a Schottky contact to a semiconductor and subclasses 597+ for methods of making an ohmic contact to a semiconductor.

451 This subclass is indented under subclass 446. Product in which a layer adjacent the silicon-containing layer contains either an (addition polymer from unsaturated monomers*) or an (aldehyde or ketone condensation product*).

452 This subclass is indented under subclass 446. Product in which a layer adjacent the silicon-containing layer comprises a cellulosic* material.

453 This subclass is indented under subclass 452. Product in which the silicon-containing layer comprises sodium silicate.

SEE OR SEARCH THIS CLASS, SUBCLASS:

448+, for a composite product in which sodium silicate may be the intermediate layer and especially subclass 449 in which sodium silicate, as the intermediate layer is the adhesive between two paper layers.

454 This subclass is indented under subclass 446. Product in which the silicon ingredient is sand*, clay* or mica*.

(1) Note. A patent claiming mica (as a constituent of a layer) will normally be considered to claim mica flakes* (flat) and will be placed in this class, subclass 324. Patents to a laminate of ground or pulverized mica will be placed in this subclass 454, unless the ground or pulverized mica is structurally defined to indicate placement in subclass 324.

SEE OR SEARCH THIS CLASS, SUBCLASS:

145, and 149+, for a product comprising a continuous but nonuniform or irregular surface, made by a layer of particulate matter which could be sand, silica or clay.

324, for a laminate comprising mica flakes; and see (1) Note. above.

455 This subclass is indented under subclass 411.1. Product in which at least one layer contains the bark of the cork oak.

(1) Note. Bark of trees other than the cork oak is considered "cellulosic*", thus patents claiming a laminate of bark will be placed in the appropriate cellulosic subclasses, especially subclasses 532+.

SEE OR SEARCH THIS CLASS, SUBCLASS:

532+, for a laminate including a layer containing bark not specified as cork and see (1) Note above.

456 This subclass is indented under subclass 455. Product in which the cork is admixed with (natural oil, natural gum or rosin*).

(1) Note. Linoleum usually is a composition comprising cork and linseed oil. Unless it is clear than the term is distorted in a patent, the word linoleum, in the description of a laminate or layer thereof, will be sufficient to place a patent to such laminate in this subclass. An obvious distortion would be the use of the word linoleum for vinyl floor covering.

SEE OR SEARCH THIS CLASS, SUBCLASS:

500+, for a vinyl containing laminate which is similar to linoleum; and see (1) Note above.

457 This subclass is indented under subclass 411.1. Product in which at least one layer contains metal*.

(1) Note. For inclusion here, a disclosure need not limit the entire composition of a layer to metal or alloy; an elemental metal or an alloy, among constituents of such layer, is sufficient.

(2) Note. Steel, solder, Wood's metal - etc., are considered metals, and may be present as a sheet or foil or as filler in some other substance.

SEE OR SEARCH THIS CLASS, SUBCLASS:

49, for a unilayer of metal sections extending both laterally and longitudinally.

148, 408, 209, 312, 313, 317, 328, 330, 344, 356, 379+, 416, and 418, for a product which includes a metal layer, metal foam, metal particle, or a fiber including a metal which may be a coating thereon as appropriately titled.

416, for a product comprising a metal laminated to a layer comprising epoxy ether either by itself or as a mixture.

553+, for stock-material* having metal particles in a component next to a non-particulate metal component.

621+, for corresponding stock-material* having a second metal component adjacent a first metal component.

SEE OR SEARCH CLASS:

2, Apparel, subclasses 260+ for a laminated stay, one layer of which is metal.

148, Metal Treatment, subclass 33 for a semiconductor stock material, especially a metal-silicon or a metal-germanium laminate.

338, Electrical Resistors, appropriate subclasses for a laminate including a metal layer and other resistor structure such as spaced lead or terminals, at the minimum.

442, Fabric (Woven, Knitted, or Non-woven Textile or Cloth, etc.), appropriate subclasses for a fabric including a free metal or alloy constituent.

458 This subclass is indented under subclass 457. Product in which a layer adjacent the metal layer contains a polyamide*, polyimide* or polyester*.

(1) Note. Urea-aldehyde is not considered to be a polyamide or polyimide for purposes of classification in this schedule and will be found in the subclass providing for condensation products of aldehyde and ketone*.

459 This subclass is indented under subclass 458. Product in which the layer comprises a polyamide and is derived from a natural source, e.g., glue*, from milk or a vegetable, or albumin or gelatin from animal tissue.

460 This subclass is indented under subclass 457. Product in which the layer adjacent the metal layer contains an (aldehyde or ketone condensation product*).

461 This subclass is indented under subclass 457. Product in which a layer adjacent the metal layer contains an (addition polymer from unsaturated monomers*).

(1) Note. This is the locus for products in which the addition polymer is substituted with heterocyclic or nitrogeneous radials, but see (2) Note below. Included under this definition are acrylamide, coumarone or vinyl pyridine polymers and patents claiming a layer of such material will be classified here.

(2) Note. A laminate of metal and a nitrile of an addition polymer from unsaturated monomers is classified with the ester and halide.

SEE OR SEARCH THIS CLASS, SUBCLASS:

463, for a laminate of metal and a nitrile of an addition polymer from unsaturated monomers; and see (2) Note above.

462 This subclass is indented under subclass 461. Product in which the addition polymer is derived from monomers which include polyunsaturated monomers (e.g., butadiene or cyclopentadiene).

(1) Note. A patent which claims metal next to "a synthetic rubber" (e.g., polymerized or copolymerized butadiene rubber, neoprene or G. R. S.*) will be placed in this subclass; unless the synthetic rubber is a thio rubber for which see (3) Note below.

(2) Note. A layer claimed as "rubber" will be considered natural rubber, unless the disclosure indicates other than a natural rubber is intended.

(3) Note. Thio rubber is considered polythioether and a patent to a laminate including thio rubber will be placed in subclass 419.

SEE OR SEARCH THIS CLASS, SUBCLASS:

419, for metal next to a "thio" synthetic rubber and see (3) Note above.

465+, for metal next to natural rubber; and see (2) Note, above.

463 This subclass is indented under subclass 461. Product in which the addition polymer is an ester, halide or nitrile.

(1) Note. The addition polymer may be derived from monomers which include esters, halide or nitrile or the addition polymer may be treated to introduce ester, halide or nitrile radicals.

(2) Note. Addition polymers of unsaturated monomers which contain fluorine are unique in properties, differing from the other halogenated polymers and patents claiming such laminates are collected in subclasses 421+.

SEE OR SEARCH THIS CLASS, SUBCLASS:

421+, for a fluorinated addition polymer of unsaturated monomers next to metal; and see (2) Note above.

464 This subclass is indented under subclass 457. Product in which a layer, adjacent the metal layer, contains cellulosic* material.

465 This subclass is indented under subclass 457. Product in which a layer adjacent the metal layer contains natural rubber*.

(1) Note. Synthetic rubber is usually derived from polymerized dienes and acrylonitriles and patents claiming these in a metal laminate are collected in subclasses 462 or 463. Patents claiming metal next to polysulfide synthetic rubber are collected in subclass 419.

SEE OR SEARCH THIS CLASS, SUBCLASS:

419, for metal next to polysulfide rubber; and see (1) Note above.

462, for metal next to chloroprene, neoprene, polymerized butadiene or G. R. S.* rubber; and see (1) Note above.

463, for metal next to acrylonitrile rubber; and see (1) Note above.

466 This subclass is indented under subclass 465. Product in which a natural rubber* containing layer is disposed between and adjacent both a metal containing layer and a natural rubber* containing layer.

(1) Note. The two rubber layers must be different in some physical or chemical aspect, e.g., degree of vulcanization, other ingredients including vulcanizers or accelerators; or a rubber containing layer may be treated on the surface.

(2) Note. A patent claiming a rubber layer, treated so as to form a surface of rubber hydro-chloride and which is laminated with a metal containing layer, will be placed here.

(3) Note. A patent to a laminate in which the two rubber layers are on the opposed faces of a metal layer will not be placed here. Such a patent will be placed in subclass 465.

SEE OR SEARCH THIS CLASS, SUBCLASS:
465, for a metal layer with two single rubber layers on each of opposed surfaces.

467 This subclass is indented under subclass 457. Product in which a layer adjacent the metal containing layer contains natural gum*, natural oil*, rosin*, lac* or a wax*.

(1) Note. Patents claiming painted metal stock in which linseed oil is the vehicle will be placed in this subclass.

(2) Note. Paints with an alkyd base or the synthetic rubber commonly known as "latex base" are not considered to contain natural oil* or gum* unless so disclosed and a patent to metal with a layer of any of these paints will not be placed here; see search notes below.

SEE OR SEARCH THIS CLASS, SUBCLASS:
458, for metal stock painted with an alkyd paint.
461, for metal stock painted with a synthetic rubber base called "latex base" paint.

468 This subclass is indented under subclass 457. Product in which a layer contiguous with the metal layer comprises (bituminous or tarry residue*).

469 This subclass is indented under subclass 457. Product in which a layer contiguous with the metal comprises a salt or a compound of a metal and oxygen.

SEE OR SEARCH THIS CLASS, SUBCLASS:
450, for a metal next to a silicon salt.

SEE OR SEARCH CLASS:
205, Electrolysis: Processes, Compositions Used Therein, and Methods of Preparing the Compositions, subclasses 316+ for metallic stock which is coated with a salt or metal oxide as a result of a process of that class.

470 This subclass is indented under subclass 469. Product in which the contiguous layer comprises a compound made by the combination of a metal and an organic acid.

SEE OR SEARCH CLASS:
260, Chemistry of Carbon Compounds, for definition of organic acid.

471 This subclass is indented under subclass 469. Product in which the contiguous layer comprises the compound formed by the combination of oxygen with a metal from Groups I A or II A of the periodic system (i.e., Lithium, Sodium, Potassium, Rubidium, Cesium, Magnesium, Calcium, Strontium and Barium).

472 This subclass is indented under subclass 469. Product in which the contiguous layer comprises a compound formed by the combination of an inorganic acid or oxygen with a metal from Groups IV B, VB or VI B of the periodic system (i.e., Titanium, Zirconium, Hafnium,

Vanadium, Niobium, Tantalum, Chromium, Molybdenum, Tungsten).

SEE OR SEARCH THIS CLASS, SUBCLASS:

386, for a rod*, strand* or fiber* coated with a titanium compound.

404, for a particle* coated with the oxide of a refractory metal (i.e., Ti, Zr, Hf, V, Nb, Ta, Cr, Mo, W).

432, for a laminate of glass* or quartz* next to a metal or a compound thereof which metal may be a refractory.

457+, for a laminated product including a metal which may be a refractory metal.

539, for a laminated product which may include a layer of a refractory metal compound.

920, and 921, for art collections of a product which has a fire, flame or heat protection feature and which may include a refractory metal or a compound thereof.

472.1 Formed in situ:

This subclass is indented under subclass 472. Product in which the contiguous layer is formed in situ by reaction with the metal of the metal layer.

(1) Note. The compound maybe formed by a reactive coating process classified in Class 148, Metal Treatment, subclasses 6+.

472.2 Aluminum or iron salt or oxide formed in situ:

This subclass is indented under subclass 469. Product in which the contiguous layer comprises an aluminum or iron solt or oxide formed in situ by reaction with the metal of the metal layer.

(1) Note. The salt or oxide maybe formed by a reactive coating process classified in Class 148, Metal Treatment, subclasses 6+.

472.3 Phosphorus containing metal salt formed in situ:

This subclass is indented under subclass 469. Product in which the contiguous layer comprises a phosphorus containing metal salt formed in situ by reaction withe the metal of the metal layer.

(1) Note. The phosphorus containing metal salt maybe formed in situ by a reactive coating process classified in Class 148, Metal layer.

473 This subclass is indented under subclass 411.1. Product in which one layer comprises at least an integral portion of a layer of animal origin which existed in the layer or film form; see (2) Note below.

(1) Note. Patents claiming a laminate including glue* or gelatin* in a film form are not included in this subclass because neither exists in the animal as a layer or foil. A patent claiming a glue* or gelatin* laminate would be placed in subclasses 474.4+.

(2) Note. Animal skin in which the fur remains intact is considered pile or nap type and patents to a laminate including such skin will be placed in subclasses 85+.

SEE OR SEARCH THIS CLASS, SUBCLASS:

85+, for a fur laminate and see (2) Note above.

151, for a web or sheet made to simulate leather grain surface.

474+, for a laminate including a film manufactured from animal protein*; and see (1) Note above.

540, for a single layer of animal skin (e.g., leather, etc.) which is impregnated or saturated with an extraneous material.

904, for a cross-reference collection of artificial leather products.

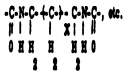
SEE OR SEARCH CLASS:

76, Metal Tools and Implements, Making, subclasses 81+ for leather laminates in the form of a strop.

359, Optical: Systems and Elements, subclasses 885+ for an optical filter system comprising more than plural layers defined merely by the composition of the layers.

473.5 Of polyimide:

This subclass is indented under subclass 411.1. Product in which a layer contains a polymer having an imide group, as illustrated below, in the polymer chain.



474.4 Of polyamide:

This subclass is indented under subclass 411.1. Product in which a layer contains a polymeric compound, comprising recurring amide groups, as illustrated below, through which the monomer residues are linearly linked, except urea-aldehyde

(1) Note. A patent claiming a laminate comprising a layer of the reaction product of a polyamine and a polybasic acid (e.g., nylon), or other condensation polymer of an amino acid such as caprolactam, will be placed in this or an indented subclass.

(2) Note. Urea-aldehyde condensation products are significantly different from other polyamide resins and are similar in spatial structure to phenol-aldehydes. Hence, patents claiming a laminate of only urea-aldehyde are collected with aldehyde or ketone condensation* products in subclasses 477.4 and 524+ and see the subclasses referred to in the notes to subclass 524.

SEE OR SEARCH THIS CLASS, SUBCLASS:

395, for a coated fiber, filament, rod or strand made of polyamide.

435, and 458, for a laminate of polyamide next to quartz or glass or metal, respectively.

473.5, for a laminate having both polyamide and polyimide, in the same or different layers.

SEE OR SEARCH CLASS:

442, Fabric (Woven, Knitted, or Non-woven Textile or Cloth, etc.), subclass 168 for a coated or impregnated synthetic polyamide fiber fabric and subclass 291 for a fabric with a preformed polyamide sheet or film.

474.7 Next to second layer of polyamide:

This subclass is indented under subclass 474.4. Product in which two polyamide layers, neither of which is urea-aldehyde, are adjacent to each other.

474.9 At least one layer is nylon type:

This subclass is indented under subclass 474.4. Product in which at least one of the polyamide layers contains a polymer having a chain of four or more carbon atoms between its carbonamide groups.

475.2 Next to polyester:

This subclass is indented under subclass 474.4. Product in which the polyamide-containing layer is next to a polyester-containing layer.

475.5 Nylon type:

This subclass is indented under subclass 474.4. Product in which the polyamide is a polycarbonamide having a chain of four or more carbon atoms between each of its carbonamide groups, e.g., etc., where X=2 or more and a molecular weight in excess of 100,000.

475.8 Next to addition polymer from unsaturated monomer(s):

This subclass is indented under subclass 475.5. Product wherein the polycarbonamide layer is next to a layer of a polymer formed by linkage of the double bonds of ethylenically unsaturated monomer(s), e.g., a vinyl polymer, an acrylic polymer, polybutadiene, etc.

476.1 Polymer of monoethylenically unsaturated hydrocarbon:
This subclass is indented under subclass 475.8. Product where the unsaturated monomer is a monoethylenically unsaturated hydrocarbon, e.g., ethylene, propylene, etc.

476.3 Next to addition polymer from unsaturated monomer(s):
This subclass is indented under subclass 474.4. Product where the polyamide is adjacent to a layer of a polymer formed by linkage of the double bonds of ethylenically unsaturated monomer(s).

SEE OR SEARCH THIS CLASS, SUBCLASS:
475.8, for a similar product where a polyamide is nylon-type.

476.6 Natural source-type polyamide:
This subclass is indented under subclass 476.3. Products where the polyamide is or is similar in structure to a polyamide from a natural source, e.g., gelatin, etc.

(1) Note. See the definition of subclass 478.2 for a description of the structure of polyamides from natural sources.

SEE OR SEARCH THIS CLASS, SUBCLASS:
478.2, for natural source-type polyamides next to other than addition polymers.

476.9 Polymer of monoethylenically unsaturated hydrocarbon:
This subclass is indented under subclass 476.3. Product where the unsaturated monomer is a monoethylenically unsaturated hydrocarbon, e.g., ethylene, propylene, etc.

SEE OR SEARCH THIS CLASS, SUBCLASS:
476.1, for a similar product where the polyamide is nylon-type.

477.4 Next to aldehyde or ketone condensation product:
This subclass is indented under subclass 474.4. Product where the polyamide is adjacent to a layer of a polymer formed by removal of the oxo oxygen from an aldehyde or ketone and interaction of the carbon, from which removed, with another molecule.

477.7 Inorganic-containing or next to inorganic-containing:
This subclass is indented under subclass 474.4. Product where the polyamide layer contains an inorganic material (an element or inorganic compound) or is adjacent to a layer which contains an inorganic material.

478.2 Natural source-type polyamide (e.g., casein, gelatin, etc.):
This subclass is indented under subclass 474.4. Product wherein the polyamide is characterized by a structure obtained by polymerization of an alpha-amino acid, that is, having a single carbon, usually substituted, between the carbon-amide groups which make up the polymer backbone.

478.4 Next to cellulosic:
This subclass is indented under subclass 478.2. Product wherein the natural source-type polyamide is next to a layer containing cellulose (including modified or regenerated) such as wood.

478.8 Paper:
This subclass is indented under subclass 478.4. Product wherein the cellulose layer is a sheet of unwoven water-laid cellulose fibers.

(1) Note. The term “paper”* includes cardboard, kraft paper, etc.

479.3 Next to cellulosic:
This subclass is indented under subclass 474.4. Product in which the polyamide layer is adjacent to a layer containing cellulose, including modified or regenerated cellulose.

479.6 Paper or wood:
This subclass is indented under subclass 479.3. Product in which the cellulosic material is wood* or a sheet of unwoven water-laid cellulose fibers.

(1) Note. The term paper* is construed to include cardboard, pasteboard, and water-laid wood pulp; and see (9) Note under subclass 411.

480 This subclass is indented under subclass 411.1. Product in which a layer comprises a polymeric compound containing ester groups through which the monomers are linearly linked to each other.

(1) Note. To be considered polyester*, the chain of units must be attached to each other through ester linkage, such as the product formed by esterification of a polyhydric alcohol with a polybasic acid or the polymeric self-esterification of a hydroxy acid. A polymer which has multiester groups and whose units are not linked through these ester groups but by means of some other method (e.g., reaction of double bonds) is not considered polyester. thus, a patent claiming a polyvinyl acetate or a poly methyl acrylate laminate will be found in subclasses 500+.

SEE OR SEARCH THIS CLASS, SUBCLASS:

26, for an artificial flower or flower petal which may be made of polyester.

395, for a rod*, strand*, filament* or fiber* having a coating thereon or being structurally defined and made of polyester.

430, and 458, for a laminate including a layer of polyester next to quartz* or glass*, or metal* respectively.

500+, and especially 514, 520 and 522 for a laminate of an addition polymer from unsaturated monomers which is an ester; and see (1) Note, above.

SEE OR SEARCH CLASS:

442, Fabric (Woven, Knitted, or Non-woven Textile or Cloth, etc.), subclass 164 for a coated or impregnated polyester fiber fabric and subclass 395 for a fabric with a preformed polyester sheet or film.

481 This subclass is indented under subclass 480. Product in which a layer adjacent the polyester-containing layer comprises a cellulosic* material.

482 This subclass is indented under subclass 480. Product in which some of the acid and/or the alcohol moieties, from which the polyester is derived, are at least trifunctional, permitting a cross-linking of the linear polyester chain.

(1) Note. A patent claiming a laminate comprising a polyester layer derived from an acid which is at least tribasic or an alcohol which is at least trihydric or in which either the poly basic acid or polyhydric alcohol is unsaturated, will be placed here.

483 This subclass is indented under subclass 480. Product in which a layer adjacent the polyester layer comprises an (addition polymer from unsaturated monomers*).

484.1 Of wax or waxy material:
This subclass is indented under subclass 411.1. Subject matter for product in which one layer is a wax* or has waxy* properties.

485 Next to cellulosic:
This subclass is indented under subclass 484.1. Subject matter for product in which a layer adjacent the wax or waxy layer comprises a cellulosic* material.

SEE OR SEARCH CLASS:

427, Coating Processes, subclasses 416 and 443 for a coating process for producing a wax layer on a base which may be a cellulosic material.

486 This subclass is indented under subclass 485. Product in which the cellulosic material is paper*.

487 This subclass is indented under subclass 486. Product in which the paper is made from well beaten chemical wood pulp, is highly calendered, and is hard, thin and almost transparent.

488.11 With pigment or dye (e.g., carbon paper, hectograph paper, etc.):
This subclass is indented under subclass 486. Subject matter for product including coloring material comprising (a) small, solid free particles* of coloring matter, (b) coloring material which has been chemically attached to another substance (dye).

488.41 Having layer over transferable material or on carrier opposite transferable material layer

This subclass is indented under subclass 488.11. Subject matter in which a layer of the composite material or selected portions of such layer nay be transferred form the carrier layer to another material (e.g., carbon-paper type), the composite being provide with at least a third layer outward of the transferable layer or directly of the carrier layer, opposite the transferable layer.

489 This subclass is indented under subclass 411.1. Product in which at least one layer contains (a bituminous or tarry residue*).

(1) Note. The residue from distillation of mineral oil and/or coal and from the destructive distillation of wood is considered to be a pitch; and a patent claiming a laminate including a layer of such material will be placed in this subclass.

(2) Note. The mere identification in the disclosure, of a material in a layer as an asphalt, tar, pitch or bitumen will be sufficient for placement of a patent in this subclass.

SEE OR SEARCH THIS CLASS, SUBCLASS:

141+, and especially 143+ for a product, usually a roofing material which includes a layer or component saturated or coated with a bituminous or tarry material (including asphalt).

440, and 468, for a layered or composite product comprising bituminous or tarry material next to quartz or glass, or metal respectively.

SEE OR SEARCH CLASS:

427, Coating Processes, subclasses 138+ for a process of coating a pavement or the earth with asphalt, tar, bitumen or oil, subclasses 186+ for a process of producing a roofing element, usually including asphalt and subclass 443 for a process of coating, utilizing asphalt, bitumen, oil or wax.

442, Fabric (Woven, Knitted, or Non-woven Textile or Cloth, etc.), subclasses 258, 282, and 298 for a fabric including a bituminous material layer.

490 This subclass is indented under subclass 489. Product in which a layer adjacent the bituminous or tarry residue layer is cellulosic*.

491 This subclass is indented under subclass 490. Product in which the cellulosic layer is paper*.

(1) Note. The term paper* is construed to include cardboard, pasteboard and water laid wood pulp; and see (9) Note under subclasses 411.1+

492 This subclass is indented under subclass 411.1. Product in which at least one layer contains natural rubber*.

(1) Note. The rubber may be modified by chemical treatment and/or admixed with other natural or with synthetic, resin(s).

(2) Note. A patent claiming a laminate comprising a layer of rubber, without indication of a synthetic origin, will be placed here.

(3) Note. Synthetic rubber is usually derived from addition polymers of polyene monomers and, unless the synthetic rubber is disclosed as a polysulfide rubber, laminates containing such a layer will be classified with addition polymers. “Thio” or polysulfide rubber is considered polythioether.

SEE OR SEARCH THIS CLASS, SUBCLASS:

310+, for a composite* web* or sheet* in which one component* is porous or cellular and is made of foamed or expanded material, which may be natural rubber and subclass 316, for a similar composite* web* or sheet* in which the porous component* may be natural rubber.

356, for a composite* web* or sheet* having an outer layer of adhesive material and in which natural rubber is part of the adhesive composition.

382, and 390, for a rod*, strand*, fiber* or filament* in which natural rubber is a coating, either as one of plural coatings or as a single coating.

419, for a laminate which contains a polysulfide synthetic rubber and see (3) Note above.

440, and 465, for a natural rubber layer next to quartz or glass or metal, respectively.

500+, for a laminate which contains synthetic rubber (other than polysulfide) and see (3) Note above.

SEE OR SEARCH CLASS:

442, Fabric (Woven, Knitted, or Nonwoven Textile or Cloth, etc.), subclasses 84, 90, 100, and 159 for a coated or impregnated fabric that contains natural oil, gum, or rosin.

493 This subclass is indented under subclass 492. Product in which adjacent layers, each containing natural rubber*, are disclosed or claimed to differ in composition or properties.

(1) Note. The rubber layers may "differ" in degree of vulcanization, kind or relative amounts of vulcanizers, accelerator or additives or in other disclosed physical properties.

(2) Note. A patent claiming plural layers of rubber, identical in composition, directly adhered to each other (e.g., by molecular attraction or static electricity) and in which an interface can be detected, will be placed in subclass 492.

SEE OR SEARCH THIS CLASS, SUBCLASS:

492, for plural layers of rubber, identical in composition and physical properties, which are directly adhered to each other and see (2) Note above.

494 This subclass is indented under subclass 492. Product wherein a layer adjacent the rubber containing layer comprises either an (aldehyde or ketone condensation product*) or an (addition polymer from unsaturated monomers*).

(1) Note. Polyvinyl acetal, being an aldehyde condensation product, a patent claiming such acetal next to rubber will be placed here.

SEE OR SEARCH THIS CLASS, SUBCLASS:

500+, for a laminate including a layer of (addition polymer from unsaturated monomers) and especially subclasses 501+ for a layer of (aldehyde or ketone condensation product) next to the (addition polymer from unsaturated monomers).

524+, for a laminate including a layer of an (aldehyde or ketone condensation product).

495 This subclass is indented under subclass 494. Product in which the addition polymer is derived from monomers which include polyunsaturated monomers, e.g., butadiene or chloroprene.

(1) Note. Patents to a laminate of natural rubber and synthetic rubber (e.g., ABS*, butadiene, or GRS*) will be placed in this subclass.

496 This subclass is indented under subclass 492. Product in which a layer adjacent the rubber layer comprises cellulosic* material.

497 This subclass is indented under subclass 411.1. Product in which at least one layer contains a (natural gum or oil, rosin or lac*).

(1) Note. A patent which claims a laminate comprising a layer of, or containing, mineral oil, shellac, oil based paint, gum arabic, cottonseed oil etc., will be placed here.

(2) Note. Modification of a natural drying oil, e.g., boiled linseed oil, will be considered natural oil.

(3) Note. Pyroxylin* has a minor amount of camphor and/or castor oil as a plasticizer, but for purposes of classification in this schedule is considered a cellulosic* material. Thus, patents claiming a laminate of pyroxylin will be placed in appropriate subclasses of this class based upon the presence of a cellulosic layer.

SEE OR SEARCH THIS CLASS, SUBCLASS:

205, for a composite web or sheet in which a translucent layer of natural gum, lac, rosin or oil covers a layer which is discontinuous in extent.

440, 456 and 467, for natural gum, rosin, natural oil or lac as a layer or associated with glass, cork or metal, respectively.

484+, for a product comprising a layer comprising wax* or waxy* material combined with a natural gum, rosin, natural oil or lac; many of the products in subclasses 484+, especially subclasses 485+ combine a wax and a gum, lac, rosin etc., as a coating on a cellulosic base.

SEE OR SEARCH CLASS:

442, Fabric (Woven, Knitted, or Nonwoven Textile or Cloth, etc.), subclasses 84, 90, 100, and 159 for a coated or impregnated fabric that contains natural oil, gum, or rosin.

498 This subclass is indented under subclass 497. Product in which a layer next to the oil, gum or lac, comprises cellulosic* material.

499 This subclass is indented under subclass 498. Product in which the layer next to the cellulosic material comprises an oil which occurs in nature.

500 This subclass is indented under subclass 411.1. Product in which at least one layer contains a compound which is an (addition polymer from unsaturated monomers*).

SEE OR SEARCH THIS CLASS, SUBCLASS:

26, for an article resembling a natural flower or flower petal and which may be made of chemically plastic matter such as an addition polymer.

147, 159, 315, 327, 339, 349, 373+, 383, and 407, for products comprising an addition polymer from unsaturated monomers used as a coating, impregnation or bond, as part of a composite* web* or sheet* or as a synthetic fiber* or filament*, as appropriately titled. See below for more specific notes.

355+, for a product including an adhesive outer layer and in which the adhesive composition includes an addition polymer from unsaturated monomers, and especially subclass 349 in which the polymer is heat sealable.

413+, for a composite product in which one layer comprises an epoxy ether which may be mixed with an addition polymer from unsaturated monomers.

421, for a laminate including a layer of fluorinated addition polymer from unsaturated monomers.

437, and 441+, for a laminate including a layer of an addition polymer from unsaturated monomers, next to a glass* layer.

451, for an addition polymer from unsaturated monomers next to a silicon containing layer.

461+, for an addition polymer from unsaturated monomers next to a metal* layer.

494+, for an addition polymer from unsaturated monomers next to a natural rubber* layer.

501 This subclass is indented under subclass 500. Product in which a layer adjacent to the layers of addition polymer from unsaturated monomers, comprises an (aldehyde or ketone condensation product*).

(1) Note. An acetal of polyvinyl alcohol is an (aldehyde or ketone condensation product); hence, a patent claiming a product of such an acetal next to another layer which comprises an addition polymer from unsaturated monomers will be placed in this subclass.

502 This subclass is indented under subclass 501. Product wherein the condensation product is the reaction product of melamine and an aldehyde.

503 This subclass is indented under subclass 502. Product wherein the melamine-aldehyde condensation product is incorporated within the interstices or applied to the surface of a material comprising cellulose* or a derivative thereof, and, if on the surface, is contiguous to the addition polymer.

504 This subclass is indented under subclass 501. Product in which the condensation product is one resulting from the reaction between an amide and an aldehyde.

505 This subclass is indented under subclass 504. Product wherein the amide is urea or a modification thereof, (e.g., butylated urea, etc.).

506 This subclass is indented under subclass 501. Product in which the condensation product is one resulting from the reaction between an aldehyde and a hydroxy benzene (i.e., a compound containing one or more hydroxyl group attached to an aromatic or carbon ring and commonly known as a phenol).

507 This subclass is indented under subclass 500. Product in which a layer comprising a cellulosic* material is adjacent to the addition polymer.

508 This subclass is indented under subclass 507. Product in which the cellulosic material is chemically modified (e.g., esterified, etc.) or precipitated from a solution (i.e., regenerated).

(1) Note. Examples of modified or regenerated cellulose are: viscose*, cellophane*, cellulose* acetate, cellulose* nitrate and pryoxylin*.

509 This subclass is indented under subclass 508. Product wherein the addition polymer is made from one or more monomers in which only carbon and hydrogen appear, (e.g., polyethylene*, polyproxylene, polystyrene, butadiene styrene copolymer (SBR)*, ethylenepropylene copolymer, etc.

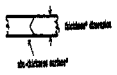
510 This subclass is indented under subclass 508. Product wherein the addition polymer is an ester or a halide.

(1) Note. The addition polymer may be obtained from a monomer which includes an ester or a halogen or the addition polymer itself may be treated to introduce an ester or a halide radical.

511 This subclass is indented under subclass 507. Product in which the cellulosic material is paper* or wood*.

512 This subclass is indented under subclass 511. Product in which the addition polymer is made from a monomer in which only carbon and hydrogen appear, (e.g., butadiene-styrene copolymer (SBR)*, butyl rubber, etc.).

513 This subclass is indented under subclass 512. Product wherein the hydrocarbon monomer(s) contain a single ethylenic group, illustrated below, not a part of an aromatic ring, e.g., polyethylene*, polypropylene, polystyrene, ethylene-propylene copolymer, etc.



514 This subclass is indented under subclass 511. Product in which the addition polymer is an ester, nitrile or halide.

(1) Note. The addition polymer may be obtained from monomers which include an ester, halide or nitrile; or the addition polymer may be treated to introduce ester, halide or nitrile radicals.

SEE OR SEARCH THIS CLASS, SUBCLASS:

421+, for a laminate of fluorinated addition polymer of unsaturated monomers next to paper or wood.

515 This subclass is indented under subclass 500. Product comprising a plurality of contiguous layers, each of which is an addition polymer from unsaturated monomers, with the respective layers disclosed as differing in some respect.

(1) Note. The "differing" may be in degree of polymerization, kind or amount of additive, vulcanization, or physical property.

(2) Note. Two identical layers which are fused together so as to eliminate the interface are considered as constituting a single layer and, in the absence of any claimed structure a patent claiming such a layer will be placed in the appropriate composition class.

(3) Note. Two identical layers of addition polymer which cohere through molecular attraction or other bonding force, e.g., static electricity, are not considered to differ. Thus, patents claiming such layers will be placed in subclass 500.

SEE OR SEARCH THIS CLASS, SUBCLASS:

212+, for layers or components having the same physical characteristics in differing degree.

500, for plural layers of addition polymer, identical in composition and physical properties, which are directly cohered to each other; and see (3) Note above.

516 This subclass is indented under subclass 515. Product wherein at least one layer contains a polymer of one or more aliphatic, open chain, monoethylenically unsaturated (i.e., monomers of the formula CnH2n).

517 This subclass is indented under subclass 516. Product wherein a layer next to the olefin polymer-containing layer comprises a polymer derived from a poly-unsaturated monomer (e.g., butadiene, etc.).

518 This subclass is indented under subclass 516. Product in which the olefin polymer layer is next to a layer of a polymer of one or monomers selected from the class of vinyl chloride and vinylidene chloride.

SEE OR SEARCH THIS CLASS, SUBCLASS:

421+, for a laminate including a layer of fluorinated addition polymer of unsaturated monomers.

519 This subclass is indented under subclass 515. Product in which at least one of the contiguous addition polymer layers is derived from a polyunsaturated monomer (e.g., butadiene, cyclopentadiene, etc.).

520 This subclass is indented under subclass 515. Product in which at least one of the contiguous addition polymer layers contains an addition polymer from an unsaturated monomer which is in the form of an ester, a nitrile, or a halide.

(1) Note. The addition polymer* may be derived from a monomer which includes an ester, halide or nitrile; or the polymer* itself may be treated to introduce an ester, halide, or nitrile radical.

SEE OR SEARCH THIS CLASS, SUBCLASS:

421+, for a laminated product including a layer of fluorinated addition polymer of unsaturated monomers.

521 This subclass is indented under subclass 500. Product in which the addition polymer layer is derived from a polyunsaturated monomer (e.g., butadiene, cyclopentadiene, etc.).

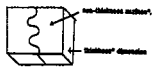
522 This subclass is indented under subclass 500. Product in which the addition polymer from unsaturated monomer is an ester, halide or nitrile.

(1) Note. The addition polymer may be derived from a monomer which includes an ester, halide or nitrile; or the polymer itself may be treated to introduce an ester, halide or nitrile radical.

SEE OR SEARCH THIS CLASS, SUBCLASS:

421+, for a laminated product including a layer of fluorinated addition polymer of unsaturated monomers.

523 This subclass is indented under subclass 500. Product in which the addition polymer is derived from a monoethylenically unsaturated hydrocarbon only, i.e., the unsaturation is present as the group:



524 This subclass is indented under subclass 411.1. Product in which at least one layer comprises a resin resulting from the reaction of an aldehyde or a ketone and a polyfunctional active hydrogen containing compound, which, with the elimination of water, produces a chain of alkylidene units alternating with the residue of the hydrogen supplying compound.

(1) Note. Phenol formaldehyde, urea formaldehyde, polyamino (e.g., melamine) formaldehyde, and furfural are exemplary of compounds within the scope of the term, "Aldehyde or ketone condensation product*.

SEE OR SEARCH THIS CLASS, SUBCLASS:

26, for an article* resembling a flower or flower petal made of an aldehyde or ketone condensation product.

355+, for a product including an adhesive outer layer in which the adhesive may contain an aldehyde or ketone condensation product in its composition.

436+, 451, 460, and 494, for an aldehyde or ketone condensation product as a coating or layer of a composite* web* or sheet*.

501+, for an (addition polymer from unsaturated monomers*) next to an aldehyde or ketone condensation product.

442, Fabric (Woven, Knitted, or Non-woven Textile or Cloth, etc.), subclasses 160+ and 176+ for a coated or impregnated fabric that includes an aldehyde or ketone condensation product.

525 This subclass is indented under subclass 524. Product in which adjacent layers, each comprising an aldehyde or ketone condensation product, are disclosed to differ in some aspect.

(1) Note. The two layers may contain different condensation products, or the same condensation product with different additives or physical properties.

(2) Note. Two identical layers of an aldehyde or ketone condensation product directly cohered to each other, but with an interface which is detectable, are nor considered to differ. Thus, a patent claiming such a laminate will be placed in subclass 524. Such layers may cohere through, e.g., molecular attraction or static electricity.

SEE OR SEARCH THIS CLASS, SUBCLASS:

212+, for layers or components having the same physical characteristic in differing degree.

524, for plural layers of an aldehyde or ketone condensation product, identical in composition and physical properties, which are directly cohered to each other; and see (2) Note above.

526 This subclass is indented under subclass 524. Product in which a layer adjacent the condensation-product layer comprises a cellulosic* material.

527 This subclass is indented under subclass 526. Product in which the cellulosic material is chemically modified (e.g., esterified) or precipitated from a solution.

(1) Note. Viscose, cellophane, cellulose acetate, cellulose nitrate and pyroxylin are exemplary of modified or regenerated cellulose.

528 This subclass is indented under subclass 526. Product in which the cellulosic material is wood*.

SEE OR SEARCH THIS CLASS, SUBCLASS:

541, for a block or single layer of wood which has been impregnated or permeated with a substance.

529 This subclass is indented under subclass 528. Product in which the aldehyde or ketone is condensed with a phenolic compound.

530 This subclass is indented under subclass 526. Product in which the cellulosic material is paper.

(1) Note. The term paper is construed to include cardboard, pasteboard and water laid wood pulp; and see (9) Note under the definition of subclass 411.1.

531 This subclass is indented under subclass 530. Product in which the aldehyde or ketone is condensed with a phenolic compound.

532 This subclass is indented under subclass 411.1. Product in which at least one layer contains either a polyhydroxy mono-aldehyde or a polyhydroxy mono-ketone, generally having the formula i.e., $Cn(H_2O)n$ or one of the multi-unit anhydrides which are hydrolizable to such aldehyde and/or ketone.

(1) Note. Patents claiming a laminate including a layer of starch*, glycogen, dextran*, lignin, etc., will be collected here.

(2) Note. Pyroxylin has a minor amount of camphor and/or castor oil as a plasticizer, but for purposes of classification is considered carbohydrate (specifically cellulosic*) rather than a natural gum or oil, and patents claiming a laminate of such a layer will be placed in this and indented subclasses.

SEE OR SEARCH THIS CLASS, SUBCLASS:

26, for a three dimension imitation or treated natural product resembling a flower and made of paper.

50, for a single layer of cellulosic sections arranged in both lateral and longitudinal directions.

84, for a paper sheet having specific perimeter or corner structure.

146, for a surface containing carbohydrate particles to give a textured feel.

153+, for a web* or sheet* comprising crinkled or creped paper.

165, for a composite* web* or sheet* in which one of the layers* or components* varies in thickness and at least one component* comprises cellulosic material.

191, for a web* or sheet* comprising plural components*, noncoextensive laterally and in which one component is cellulosic material.

211, for a paper sheet* having a discontinuous or differential coating, bond or impregnation.

314, for a composite*, web* or sheet*, one component* of which is porous or cellular* and is made of expanded or foamed material and is adjacent to a cellulosic layer.

318, for a similar composite*, web* or sheet* in which the porous or cellular* component* contains fiber* and as paper.

326, for a composite*, web* or sheet* in which one component* contains structurally defined particles* of cellulosic material.

342, for a web* or sheet* in which the weight of a coating on a cellulosic substrate is recited in terms of an area covered thereby.

393, for a coated or structurally defined rod* strand*, fiber* or filament* of cellulosic material.

411+, appropriate subclasses with cellulosic or carbohydrate set out in the titles for a composite* web* or sheet* including a cellulosic or carbohydrate component.

455+, for a laminated product including cork* (the outer bark of cork oak).

SEE OR SEARCH CLASS:

442, Fabric (Woven, Knitted, or Nonwoven Textile or Cloth, etc.), subclass 153 for a coated or impregnated cellulosic fiber fabric and subclass 257 for a fabric including a wood or cork layer.

533 This subclass is indented under subclass 532. Product in which each of contiguous layer contains carbohydrate, at least one of which layers contains a cellulosic* material.

534 This subclass is indented under subclass 533. Product in which both such contiguous layers comprise cellulosic material.

535 This subclass is indented under subclass 534. Product in which at least one of the cellulosic layers is paper* or wood*.

SEE OR SEARCH THIS CLASS, SUBCLASS:

541, for a single layer of wood which has been impregnated or permeated with a substance.

SEE OR SEARCH CLASS:

162, Paper Making and Fiber Liberation, for a multilayer paper web or sheet which is produced by a process of that

class; and see (9) Note under the definition of subclass 411.1 of this class (428).

536 This subclass is indented under subclass 534. Product in which at least one of the adjacent cellulosic layers is chemically modified or precipitated from solution.

(1) Note. Patents claiming a laminate of cellulose acetate, cellulose nitrate, cellulose ether or pyroxilin* will be collected here.

SEE OR SEARCH THIS CLASS, SUBCLASS:

439, for cellulosic ester next to glass and subclass 527 for modified or regenerated cellulose next to an aldehyde or ketone condensation product.

535, for a product in which regenerated or modified cellulose may be adjacent to a layer of wood or paper.

537.1 Of wood:

This subclass is indented under subclass 532. Product in which the carbohydrate layer is wood.

537.5 Of paper:

This subclass is indented under subclass 532. Product in which the carbohydrate layer is paper.

(1) Note. Cardboard, pasteboard and waterlaid pulp are considered exemplary of paper.

SEE OR SEARCH CLASS:

162, Paper Making and Fiber Liberation, for a multi-ply paper web or sheet which is produced by a process of that class; and see (9) Note, under the definition for subclass 411.1 of this class (428).

537.7 Next to layer of metal salt (e.g., plasterboard, etc.):

This subclass is indented under subclass 537.5. Product, in which the paper is adjacent to a metal salt, such as calcium sulfate, etc.

539.5 This subclass is indented under the class definition. Products in which a continuum (matrix or continuous phase) of elemental metal is interengaged with a continuum of nonmetal material.

(1) Note. These products are most usually obtained by the impregnation of a metal or nonmetal composition, having an interconnected void structure, with a nonmetal or metal composition, respectively, in a fluent form.

SEE OR SEARCH THIS CLASS, SUBCLASS:

540, for products having interengaged nonmetal continuous phases.

545, for the product which results when a consolidated metal powder material having an interconnected void structure is only partially impregnated with a nonmetal.

550, for the product which results when a consolidated metal powder material having an interconnected void structure is impregnated with a different metal material.

566, for consolidated metal powder stock-material* having an interconnected void structure.

SEE OR SEARCH CLASS:

75, Specialized Metallurgical Processes, Compositions for Use Therein, Consolidated Metal Powder Compositions, and Loose Metal Particulate Mixtures, subclasses 314+ for a consolidated composition containing free metal that is to be used as a charge for a metallurgical process and subclasses 230+ for consolidated metal powder compositions containing a nonmetal ingredient.

419, Powder Metallurgy Processes, subclass 27 for processes of sintering powdered metal followed by impregnation.

427, Coating Processes, subclasses 440+ for immersion-type coating processes which may result in the impregnation of coating material into the pores of a substrate.

442, Fabric (Woven, Knitted, or Non-woven Textile or Cloth, etc.), subclasses 228+ and 376+ for a fabric including a free metal or alloy constituent.

501, Compositions: Ceramic, for ceramic compositions containing metal particles in a nonmetal matrix without a continuous metal phase.

520, Synthetic Resins or Natural Rubbers, in particular, classes 523 and 524 for a synthetic resin or natural rubber composition containing a nonreactant material, but without a continuous metal phase.

540 This subclass is indented under the class definition. Product comprising a block* or other solid mass*, or a single layer*, sheet* or web* which is found in nature in substantially the same form and is saturated or permeated with an extraneous material substantially throughout.

(1) Note. If recited to specify a specific depth of penetration of the saturating material so that a definite interface can be determined, classification is above this subclass on other features such as for example 212+ or 411.1+.

(2) Note. Where no specifically recited depth of penetration is recited as for example, 1/4 inch, half-way through, etc., the product will be considered to be impregnated substantially throughout and will be placed in this subclass.

(3) Note. Where a claim includes a solid block or piece of wood, and alternatively wood pulp or wood flour or wood chips and no structure of the particles, the original classification will be in this or the indented subclass with a cross reference to the appropriate composition or other classes, e.g., 106, 162, 252, 260, etc.

(4) Note. Unless disclosed otherwise, wood and leather will be considered as in the solid-state and proper for this or the indented subclass.

(5) Note. Rubber is not a natural solid and is excluded from this group of subclasses.

(6) Note. Unless otherwise described or identified (as for example as particles*, chips, etc.) cork will be considered to be a natural solid and will be classified in subclass 541 indented hereunder.

SEE OR SEARCH THIS CLASS, SUBCLASS:

473, for a plural layer product in which one of the layers is leather or other animal skin.

511+, 528+, 535, and 537, for plural layer products in which one layer may be a wood product.

541 This subclass is indented under subclass 540. Product in which the natural solid comprises a wood or lumber product which is of substantial size as a sheet, web, block, etc., that is the wood product has not been comminuted into particles or small bits or pieces.

542.2 DECORATIVE ARTICLE:

This subclass is indented under the class definition. Subject matter comprising a fully shaped article which has as its only utility merely the adornment, or embellishment of a place or thing and not provided for elsewhere.

(1) Note. When any function other than mere appearance is ascribed to an article in the specification or claims of a patent, the patent is placed in the class and subclass which provides for that other function.

(2) Note. See Designs Classes D1 to D99 for inventions in the decorative appearance of articles of commerce which have a main function other than that of being decorative.

SEE OR SEARCH THIS CLASS, SUBCLASS:

3, through 31, for ornaments characterized by special structural features, or times, or places of use, particularly the definition of subclass 7 for the location of decorations and ornaments classified elsewhere; subclass 12 for a hanging ornament; and subclass 17 for a treated piece of wood which looks like wood.

156+, for a sheet, or web having decorative or informative elements embossed therein.

SEE OR SEARCH CLASS:
2, Apparel, subclass 175.3 for a decorative trimming for a hat and subclasses 244+ for decorative trimming for other clothing.
40, Card, Picture, or Sign Exhibiting, subclass 427 for a display having an enhanced visual effect.
52, Static Structures (e.g., Buildings), subclasses 311.1+ for an ornamental building component and subclasses 718.01+ for a decorative trim strip for a building, or building component.
362, Illumination, subclasses 362+ for a decorative housing for an illuminating device, e.g., a globe for an electric lamp, etc.
430, Radiation Imagery Chemistry: Process, Composition, or Product Thereof, subclasses 9+ for a chemically defined photograph.
434, Education and Demonstration, subclasses 81+ for inventions in teaching, or demonstrating visual arts and crafts, especially subclasses 83 for a model made of filaments and 86 for an animal, or human body model having movable parts.
446, Amusement Devices: Toys, subclasses 115+ for a sculpture designed to be handled, or manipulated frequently.

542.4 Trophy or memento (e.g., preserved artifact, etc.):
This subclass is indented under subclass 542.2. Subject matter the appearance of which is designed to call to mind a person, or event.

SEE OR SEARCH THIS CLASS, SUBCLASS:
913.3, for a collection of patents drawn to memorial plaques.

SEE OR SEARCH CLASS:
52, Static Structures (e.g., Buildings), subclasses 103+ for a land marker, or monument, and subclass 134 for a mausoleum.

542.6 Constructed from filamentary or flat sheet material:
This subclass is indented under subclass 542.2. Subject matter deriving its appearance mainly from originally flat sheet material and/or wire, cord, slender rods, etc.

SEE OR SEARCH THIS CLASS, SUBCLASS:
34.1+, for a hollow article, e.g., a container defined only in terms of the composition from which it is made, etc.

SEE OR SEARCH CLASS:
52, Static Structures (e.g., Buildings), subclasses 633+ for an openwork building component.

542.8 ARTICLE OF INTERMEDIATE SHAPE (E.G., BLANK, PARISON, PREFORM, ETC.):
This subclass is indented under the class definition. Subject matter comprising a fully shaped article which is not suitable for functional use in the claimed condition, but must be subjected to one or more further significant shaping steps to do more than merely occupy space.

(1) Note. The following operations have been regarded as not involving a further significant shaping:

(a)Assembling, or uniting the article with other parts.

(b)Distorting the article during an assembly operation to cause the article to conform to discrepancies in the size, or shape of a coacting part.

(c)Bonding, or distorting those portions of the article which are to function as means for fastening the article to a coacting part, as, for example, the bending of ears, or tabs.

(d)Completely destroying the identity of the article as by disintegrating, melting, etc.

(2) Note. See the main definitions of this class (428), section VI, A, 2, for a listing

of classes of subject matter which provide for their own blanks.

SEE OR SEARCH THIS CLASS, SUBCLASS:

43+, and 571, for a series of blanks connected together by a weakened portion intrinsic to the material of which the blank is made.

81, for a sheet having a defined perimeter structure.

105, for a plural component web having grain elements in an angular relationship.

577+, for an intermediate article which is all metal or has adjacent metal layers.

SEE OR SEARCH CLASS:

83, Cutting, subclass 55 for a blanking process.

264, Plastic or Nonmetallic Article Shaping or Treating: Processes, appropriate subclasses for methods of deforming nonmetal blanks.

359, Optical: Systems and Elements, subclasses 838+ for a mirror or portion of same.

543 Product or stock material not provided for in any preceding subclass in this class or where no other classification exists.

(1) Note. Examples of products found in this subclass are: a mass of filaments of no definite structure, mixtures of strands or strips of no definite structure, etc.

(2) Note. A surface modified so as to form a chemical composition or compound is classified in the appropriate compound or composition class, e.g., 106 or 260.

(3) Note. No patent should be placed in this subclass before consulting the "Index to U.S. Patent Classification" for a more appropriate class and subclass.

(4) Note. The search notes below indicate classes and subclasses frequently overlooked in mistakenly deciding that an article is "miscellaneous".

SEE OR SEARCH THIS CLASS, SUBCLASS:

409+, for a web, sheet or block claimed in terms of a surface characteristic.

SEE OR SEARCH CLASS:

16, Miscellaneous Hardware, subclass 110.1 for a handle, per se, and the definitions thereto for the location of other handles.

24, Buckles, Buttons, Clasps, etc., subclass 225 for the loop-type eye of a hook-and-eye fastener.

106, Compositions: Coating or Plastic, for a single-layer material for building construction, claimed in terms of its composition, even though described or nominally claimed as an "article".

116, Signals and Indicators, subclasses 63+ for a street traffic marker.

135, Tent, Canopy, Umbrella, or Cane, subclass 65 for a handle for a cane or umbrella.

164, Metal Founding, subclasses 235+ for a patterned mold for molten metal or a part of such mold.

169, Fire Extinguishers, subclass 50 for a means for isolating a person or nonburning thing from a fire, e.g., a firebarrier, or shield.

174, Electricity: Conductors and Insulators, subclasses 32+ for anti-inductive structures, especially subclass 35 for devices which shield, or protect structures from magnetic, or electrical interference.

215, Bottles and Jars, subclasses 200+ for a closure for a bottle.

219, Electric Heating, subclasses 201+ for an article containing an electric heating wire, or other element for heating the article.

228, Metal Fusion Bonding, subclass 44.1 for a holder, or pusher for a metal part to be welded to another part by fusion bonding.

237, Heating Systems, subclass 79 for a radiator heat shield.

248, Supports, subclasses 637+ for a machinery support.

249, Static Molds, subclasses 187+ for an element for such a mold.

250, Radiant Energy, subclasses 515+ for devices, e.g., shields for absorbing invisible radiation.

267, Spring Devices, subclasses 136+ for a device for absorbing shocks, e.g., a resilient dunnage element, etc.

273, Amusement Devices: Games, subclass 146 for a game playing die, and subclasses 293+ for a game playing card or tile.

294, Handling: Hand and Hoist-Line Implements, subclass 27 for a receptacle handle, subclass 61 for spears and subclass 131 for shields.

296, Land Vehicles: Bodies and Tops, subclasses 187.01 through 30 for a land vehicle body wall or a component thereof.

361, Electricity: Electrical Systems and Devices, subclass 600 for a potted electrical device.

403, Joints and Connections, subclass 30 for a joint between two objects having different coefficients for expansion.

411, Expanded, Threaded, Driven, Headed, and Tool-Deformed or Locked Threaded Fasteners, subclasses 378+ for an externally threaded fastener.

430, Radiation Imagery Chemistry: Process, Composition, or Product Thereof, subclass 5 for a mask to be used in photography.

521, Synthetic Resins or Natural Rubbers, subclasses 50+ for a single layer of foamed synthetic resin claimed in terms of its composition; even though described, or nominally claimed as an "article".

544 This subclass is indented under the class definition. Subject matter drawn to stock-material* or an intermediate-article* which is metallic* or to a shaped metal configuration designed for melting.

(1) Note. The article or stock-material* may also contain nonmetal material when it meets the requirements of this subclass for containing spatially distinct portions of different metals or distinct forms of a metal, contiguous to each other.

(2) Note. Metallic* products made up of a mere random mixture of ingredients, whether or not such ingredients are structurally defined, are generally considered to be compositions, and are classified in the appropriate composition class (including Class 148 "stock"). However, where the product is characterized by its dimensions, as in subclasses 606+ or by a particular internal structure, due to a particular interrelationship among its elements, or in subclasses 566 and 605 it is considered to be a stock-material*. See the definition of this class.

(3) Note. A manufacture which comprises an indefinite series of articles, whether intermediate or finished, still joined to each other, as their precursor material was joined in the workpiece from which the manufacture was made, is generally considered to be a stock-material* and such manufactures coming within the scope of this mainline subclass are generally found in indented subclasses 571 to 575. See also the class definition of this class (428), section VI, A.

SEE OR SEARCH CLASS:

30, Cutlery, subclass 345 for cutlery implements in which the invention lies in the material from which made, subclass 346.54, directed specifically to razor-blade material, and subclass 350, directed to the metallurgical features of a blade.

51, Abrasive Tool Making Process, Material, or Composition, particularly subclass 309 for a process of making or material for making a metallic abrasive tool.

52, Static Structures (e.g., Buildings), subclasses 712+ for sheet or wire ties.

57, Textiles: Spinning, Twisting, and Twining, subclasses 200+ for strand structures of that class, and subclass 362 for wire-rope-making processes.

72, Metal Deforming, subclasses 362+ for processes of changing the size or shape of self-sustaining metal work.

74, Machine Element or Mechanism, subclass 588 for connecting rods fabricated from sheet metal.

76, Metal Tools and Implements, Making, subclasses 101.1+ for blanks for processes of that class.

109, Safes, Bank Protection, or a Related Device, subclass 78 for safes, safe walls and safe plates which may be made of metal.

123, Internal-Combustion Engines, subclass 90.51 for the composition of a tappet of that class, and subclasses 188.1+ for valves of that class which may be made of metal.

139, Textiles: Weaving, subclass 425 for a fabric of that class which includes metal.

200, Electricity: Circuit Makers and Breakers, subclasses 262+ for contacts of that class which are of specific materials, e.g., metal-containing.

204, Chemistry: Electrical and Wave Energy, subclasses 292+ for electrodes having a free-metal-containing composition, useful for carrying out the processes of that class.

205, Electrolysis: Processes, Compositions Used Therein, and Methods of Preparing the Compositions, subclasses 76+ for an electroforming process directed to the production of sheets, webs, wires, and filaments.

238, Railways: Surface Track, subclass 4 for metallic highway track, subclass 26 for longitudinal metal rail-supporting beams, subclasses 30+ for railway ties which may be metal, subclass 111 for a pot-type rail support made of cast metal, subclass 112 for a wrought plate support, subclass 150 for materials for rails, subclasses 269+ for cast rail seats, and subclasses 272+ for wrought rail seats.

249, Static Molds, subclass 213 for a mold adjunct in the form of a sheet-metal tie for maintaining mold elements in spaced relation.

280, Land Vehicles, subclass 28 for a device of that class in which the sliding portion of a base is claimed.

403, Joints and Connections, subclasses 271+ for a molded joint comprising metal fusion material.

413, Sheet Metal Container Making, subclasses 1+ for processes and machines for shaping and seaming sheet metal hollow articles and machines for forming and compressing the seams of roofing sheets.

416, Fluid Reaction Surfaces (i.e., Impellers), subclasses 223+ for specific impeller blade structures, e.g., shapes, materials, etc.

451, Abrading, subclass 553 for a metallic abrading tool.

474, Endless Belt Power Transmission Systems or Components, appropriate subclasses for a friction or positive drive pulley, guide roll, or belt which may be formed of cast or sheet metal.

623, Prosthesis (i.e., Artificial Body Members), Parts Thereof, or Aids and Accessories Therefor, appropriate subclasses for miscellaneous articles animal body parts, elements and accessory to such parts which may be used of metal.

545 This subclass is indented under subclass 544. Subject matter directed to composite (e.g., multilayer) material in which a component (e.g., a single layer) has a continuum (matrix or continuous phase) of elemental metal and also a continuum of nonfluent nonmetal interengaged or interenmeshed with the metal continuum.

(1) Note. To be included within the definition of interengaged, the two phases must be related in an interlaced, reticulated, interwoven, etc., fashion.

(2) Note. A mere dispersion of particles in a matrix does not come within the purview of this subclass.

SEE OR SEARCH THIS CLASS, SUBCLASS:

539.5, for noncomposite (e.g., single layer) stock-material* having a metal continuum interengaged with a solid nonmetal continuum.

548+, for composite metallic stock which contains metal particles.

615+, for composite metallic stock in general.

SEE OR SEARCH CLASS:

75, Specialized Metallurgical Processes, Compositions for Use Therein, Con-

solidated Metal Powder Compositions, and Loose Metal Particulate Mixtures, subclasses 230+ for a consolidated metal particle composition containing nonmetal.

200, Electricity: Circuit Makers and Breakers, subclass 264 for a contact comprising an infiltrated porous substance.

419, Powder Metallurgy Processes, subclass 28 for processes of mechanically working particulate metal subsequent to sintering.

442, Fabric (Woven, Knitted, or Nonwoven Textile or Cloth, etc.), subclasses 228+ and 376+ for a fabric including a free metal or alloy constituent.

546 This subclass is indented under subclass 544. Subject matter which contains free (elemental) metal particles.

(1) Note. This and its indented subclasses include stock-material* made by sintering, that is, a process in which a portion of a metal particle is alloyed, bonded, brazed, coalesced, partly fused or welded to a portion of an adjacent metal particle due to the application of heat, or heat and pressure. Reference: Everhart, J. L., et al, "Mechanical Properties of Metals and Alloys", Circular of the National Bureau of Standards, C447, 1943, p, 16.

(2) Note. The particulate metal component may contain particles of nonmetal material and a component is deemed to contain metal particles if made from a starting mixture of metal and nonmetal particles, even though all of the metal may have melted in the process. Thus, "cemented" carbides are assumed to contain metal particles.

(3) Note. In this and its indented subclasses, the particulate nature of the metal in the product may not always be explicit. When the product is manufactured from metal powder, it is presumed that some of the particulate nature of the starting material is preserved, at least in the grain structure of the product. This presumption holds even where the shape of the particles is changed, e.g., from rounded to flattened. Where the particles are disclosed as being fully molten during the process, and solidified in a mass, e.g., as in conventional metal spray coating, this presumption does not hold.

(4) Note. Mere mention of the grain structure or crystalline configuration or a metal component does not justify placement in these subclasses (544+).

(5) Note. Mere porosity, even when a percentage figure is claimed, or reference to an ingredient as a metal powder, is not sufficient for classification as stock-material*, recitation of an interconnected void structure in an article is sufficient. See subclass 566.

(6) Note. The metal particles need not be joined, or even adjacent, to one another; rather, when a product is defined as having a portion or component which has a metal matrix, that is, continuous phase of free (elemental) metal, next to a portion or component which contains metal particles, even in a matrix of a nonmetal, it is assumed that metal-to-metal contiguousness exists, and the patent is properly placed here (subclasses 546+).

SEE OR SEARCH THIS CLASS, SUBCLASS:

148, 208, 309, 328, and 330, for a nonmetallic sheet or web containing particles which may be free metal.

403+, for a coated particle or a mass thereof, which particle or coating may be of free metal.

570, for a metal particle coated with a metal.

SEE OR SEARCH CLASS:

75, Specialized Metallurgical Processes, Compositions for Use Therein, Consolidated Metal Powder Compositions, and Loose Metal Particulate Mixtures, subclasses 314+ for consolidated solid treating compositions for molten metal or consolidated charges that contain free metal, subclasses 228+ for metal compositions made

from random mixtures which include metal powder, and subclasses 255+ for loose metal powder compositions.

100, Presses, 266, Metallurgical Apparatus; and 425, Plastic Article or Earthenware Shaping or Treating: Apparatus; for apparatus for forming compacts from powdered metal. For the line between these classes, see the class definition of Class 425.

106, Compositions: Coating or Plastic, subclasses 403+ for pigments, fillers, and aggregate containing metallic powder.

149, Explosive and Thermic Compositions or Charges, especially subclasses 37+ and 108.2 for such compositions containing particulate metals.

204, Chemistry: Electrical and Wave Energy, subclass 280 for an electrode which may contain particles of free metal.

252, Compositions, subclass 63.2 for electrical resistance elements distinguished only by their composition, and subclasses 181.1+ for "getter" compositions.

264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclasses 5+ for liquid or melt comminuting of metals, and subclass 111 for processes of uniting metal particles without sintering.

310, Electrical Generator or Motor Structure, subclass 214 for coil retainers or slot closures which may contain particles of free metal.

419, Powder Metallurgy Processes, appropriate subclasses for processes of making articles from metal particles using pressure with without heating, especially subclasses 5+ for such processes to produce composite articles which may have plural adjacent powder or solid metal layers or components.

420, Alloys or Metallic Compositions, appropriate subclasses for elemental metal or alloys in particulate form.

427, Coating Processes, subclasses 180+ for methods of applying solid particles or fibers to a base, and subclasses 202+ for application of superposed diverse coatings, one of which is particulate.

442, Fabric (Woven, Knitted, or Nonwoven Textile or Cloth, etc.), subclasses 228 and 376 for a fabric including a free metal or alloy constituent which may be metal particles.

501, Compositions: Ceramic, for ceramic compositions having metal particles in a nonmetal matrix without a continuous metal phase.

520, Synthetic Resins or Natural Rubbers, in particular, Classes 523 and 524 for a synthetic resin or natural rubber containing composition containing a nonreactant material. In these compositions, the nonreactant material may be metal particles, which are dispersed in a continuous nonmetal phase, without a continuous metal phase.

547 This subclass is indented under subclass 546. Subject matter in which the porosity in one portion of the material or article differs from the porosity in another portion of the material or article or in which the composition or density of the stock-material* varies gradually from being of one composition or density to being another composition or density, without the formation of distinct layers during the variance, or wherein such variation takes place within a single component of a composite.

(1) Note. The gradual nature of the composition or density variation must be explicit for the patent to be classified herein on the basis of a composition or density gradient.

(2) Note. The presence of a "diffusion layer" between metal components does not place a patent in this subclass; such a patent is classified on the basis of the layers. See the definition to subclass 544.

SEE OR SEARCH THIS CLASS, SUBCLASS:

170, for a nonmetallic sheet, web, or a component thereof varying in thickness and wherein its density also varies and which may or may not contain metal particles.

305, for a nonmetallic composite sheet or web, a component of which has differential or varying porosity or density, which may or may not contain metal particles.

545, for the product which results when a consolidated metal powder material having an interconnected void structure is only partially impregnated with a nonmetal material.

550, for the product which results when a consolidated metal powder material having an interconnected void structure is only partially impregnated with a different metal.

610, for nonparticulate products in which the composition or density varies gradually within a single layer.

SEE OR SEARCH CLASS:

109, Safes, Bank Protection, or a Related Device, subclasses 80+ for wall and panel composites having composition or density gradient or differential porosity.

204, Chemistry: Electrical and Wave Energy, subclasses 471+ for processes directed to the coating of forming of metal layers or objects by electrophoresis or electro-osmosis.

427, Coating Processes, subclasses 402+ for plural superposed diverse metallic coating methods.

548 This subclass is indented under subclass 546. Subject matter which comprises at least two different contiguous layers or portions, which can be seen to be in different locations, both of which are, at least to some extent, of elemental metal, at least one of which has a continuous metallic matrix and at least one of which contains metal particles.

(1) Note. This subclass (548) is the locus for patents having two or more contiguous layers, all of which are of consolidated metal powder.

(2) Note. This subclass (548) includes a consolidated metal powder product, a portion of which has been impregnated with one metal, and another portion of which has been impregnated with a different metal.

SEE OR SEARCH THIS CLASS, SUBCLASS:

411+, for corresponding nonmetallic* stock-materials*.

615+, for corresponding nonparticulate metallic stock.

SEE OR SEARCH CLASS:

75, Specialized Metallurgical Processes, Compositions for Use Therein, Consolidated Metal Powder Compositions, and Loose Metal Particulate Mixtures, subclasses 228+ for a consolidated composition of metal powder and subclasses 255+ for unconsolidated metal powders.

148, Metal Treatment, subclasses 516 through 537 for processes of treating layered solid or semi-solid metal stock or article to modify or maintain the internal physical structure (i.e., microstructure) or chemical properties of metal. If metal casting, fusion bonding, machining, or working is involved, there is a requirement for significant heat treatment as described in the Class 148 definition.

378, X-Ray or Gamma Ray Systems or Devices, subclasses 143+ for laminated electrodes designed to generate X-rays in which at least one layer contains metal particles.

419, Powder Metallurgy Processes, for processes of sintering powdered metal.

427, Coating Processes, subclass 191 for processes of applying metal particles to a base to form a continuous coating, and subclasses 202+ for processes of applying superposed diverse coatings, at least one of which is particulate.

549 This subclass is indented under subclass 548. Subject matter in which the composite contains fibrous material, whether metal or nonmetal, asbestos or cellulose, in next to the component which contains the metal particles.

(1) Note. The metal particles may be contained within an interengaged fibrous matrix, for example, a textile.

SEE OR SEARCH THIS CLASS, SUBCLASS:

34.1+, 47, 50+, 5+, 60+, 88+, 141, 150, 151+, 169+, 200+, 205, 209+, 220+, and 608, for other fiber, cellulose and/or asbestos-containing stock-materials*.

SEE OR SEARCH CLASS:

57, Textiles: Spinning, Twisting, and Twining, subclasses 200+ for stock-material* comprising metal or non-metal strand, web or sheet structures having a claimed twisted or twined constituent and made by the machines and processes of that class (57).

75, Specialized Metallurgical Processes, Compositions for Use Therein, Consolidated Metal Powder Compositions, and Loose Metal Particulate Mixtures, subclass 229 for a consolidated metal powder composition having a fibrous component or a fibrous grain structure.

245, Wire Fabrics and Structure, subclasses 2+ for metallic wire fabric and miscellaneous wire fabric joints formed by bending at least one intersecting or connecting element about the other.

442, Fabric (Woven, Knitted, or Non-woven Textile or Cloth, etc.), subclasses 228+ and 376+ for a fabric including a free metal or alloy constituent.

550 This subclass is indented under subclass 548. Subject matter in which a component has pores*.

(1) Note. Included herein are those products having pores or interconnected voids which are filled in only a portion of the product.

SEE OR SEARCH THIS CLASS, SUBCLASS:

566, for particulate metal stock-material* having an interconnected void structure.

613, for nonparticulate porous metallic* stock-material*.

SEE OR SEARCH CLASS:

51, Abrasive Tool Making Process, Material, or Composition, particularly subclass 296 for an abrasive tool making process including the step of forming pores or voids in the finished article, or compositions which form pores or voids therein.

74, Machine Element or Mechanism, subclass 434 for porous metallic rotary bodies of that class.

252, Compositions, subclass 12 for a porous bearing containing a fluent lubricant described by composition.

551 This subclass is indented under subclass 548. Subject matter in which a component is composed of nonmetal, containing no free metal.

(1) Note. The nonmetal component is in addition to the two contiguous metal-containing portions.

SEE OR SEARCH THIS CLASS, SUBCLASS:

539.5, for single layer material having a continuous metal phase and an interengaged or interenmeshed nonmetal phase.

SEE OR SEARCH CLASS:

416, Fluid Reaction Surfaces (i.e., Impellers), subclass 241 for an impeller blade characterized by a specified structure other than shape which is not elsewhere classifiable; or a blade having a residual surface film, layer or continuous deposit, or, at least, partial impregnation; or a blade whose material composition is specifically set forth.

552 This subclass is indented under subclass 551. Subject matter in which the nonmetal component contains no organic material.

(1) Note. Where the nonmetal component is functionally defined and is generic to both organic and inorganic materials, e.g., “an insulating layer”, the patent is placed in subclass 551 and is not-cross-referenced here.

(2) Note. "Enamel" without a further description, is presumed to be inorganic; "paint" is presumed to be organic.

553 This subclass is indented under subclass 548. Subject matter in which the product includes a component which contains metal powder and another component which is of metal which does not show any origin as metal particles.

(1) Note. The particles in the powder portion may not be consolidated enough to form a coherent article or material without the presence of the nonparticulate portion.

SEE OR SEARCH CLASS:
148, Metal Treatment, subclasses 240+ for processes and compositions employing agents which react with a metal substrate to form a coating thereon.

554 This subclass is indented under subclass 553. Subject matter having two or more components which show no origin as metal powder.

SEE OR SEARCH THIS CLASS, SUBCLASS:
615+, for composite metallic stock-material* having no powder component.

SEE OR SEARCH CLASS:
313, Electric Lamp and Discharge Devices, subclass 345 for filament and resistance-heated electrodes which are composites.

555 This subclass is indented under subclass 554. Subject matter in which the plural nonparticulate components are adjacent each other.

SEE OR SEARCH CLASS:
313, Electric Lamp and Discharge Devices, subclass 355 for composite electrode and shield structures of a plurality of laminations.

556 This subclass is indented under subclass 555. Subject matter in which a particulate component, e.g., a layer, contains nonmetal.

(1) Note. The nonmetal may be the continuous phase of the component which contains metal particles.

SEE OR SEARCH CLASS:
219, Electric Heating, subclass 146 for an electric arc heating electrode, e.g., a metal rod having a core of a fluxing composition and having more structure than a mere stock-material*.

557 This subclass is indented under subclass 553. Subject matter having two or more spatially distinct components, each containing metal particles.

558 This subclass is indented under subclass 553. Subject matter in which the nonparticulate metal component serves to enclose, completely or partially, the particulate metal component.

(1) Note. The metal particles often are distributed in a nonmetal matrix of fluxing agent to make a "solder stick".

SEE OR SEARCH THIS CLASS, SUBCLASS:
208, 328 and 330, for a plural layer nonmetallic* sheet or web in which one layer contains metal particles.
559+, for other metallic* composites having metal particles mixed with nonmetal fluxing components.

SEE OR SEARCH CLASS:
75, Specialized Metallurgical Processes, Compositions for Use Therein, Consolidated Metal Powder Compositions, and Loose Metal Particulate Mixtures, subclasses 303+ for flux compositions, per se, containing metal particles, without a binder.
106, Compositions: Coating or Plastic, subclass 1 for metal depositing, e.g., "hard facing", compositions containing metal particles and a nonmetal binder or carrier fluid, with or without a fluxing component.
148, Metal Treatment, subclass 24 for flux compositions, per se, containing metal particles and a binder or carrier fluid.
219, Electric Heating, subclass 146 for an electrode for arc heating of metal,

having a core of a fluxing composition.

228, Metal Fusion Bonding, subclass 56.3 for an article adapted to be applied to work as filler material, subclass 214 for a process of surface-bonding metallic parts using a flux, subclass 244 for such methods using an unfused (e.g., particulate) metal filler, and subclasses 262.1+ for such method wherein the work component, temperature, or pressure is critical.

376, Induced Nuclear Reactions: Processes, Systems, and Elements, subclasses 412+ for nuclear fuel component structure in layered, channel or jacketed form, encased together with a nonfuel component.

559 This subclass is indented under subclass 553. Subject matter in which the metal particles of the particulate component are not joined to each other.

(1) Note. The particles may be loose, that is, adjacent to each other, but not permanently fastened to each other.

SEE OR SEARCH THIS CLASS, SUBCLASS:

558, for materials similar in their ultimate composition and functions to those contained herein and the search notes thereto.

SEE OR SEARCH CLASS:

427, Coating Processes, subclass 197 for processes of applying particles to localized different areas of a base.

560 This subclass is indented under subclass 553. Subject matter in which metal particles are held in discontinuous array by a nonmetal material which functions as a binder or matrix for the particles.

(1) Note. Contrary to the general rule for patent placement in these subclasses (544+), a patent is not placed in this subclass when the nonparticulate component is generically claimed, if such component is disclosed as being confined to those materials specifically provided for in the subclasses indented hereunder.

SEE OR SEARCH THIS CLASS, SUBCLASS:

208, 328 and 330, for a plural layer nonmetallic* sheet or web in which one layer contains metal particles.

556, for a composite having plural adjacent nonparticulate metal components and a particulate component which includes a nonmetal.

558, for materials similar in their ultimate composition and function to those contained herein, and the search notes thereto.

SEE OR SEARCH CLASS:

313, Electric Lamp and Discharge Devices, subclasses 326+ for electrode and shield structures which are more than mere stock materials.

427, Coating Processes, subclasses 59+ for coating processes for producing electrodes used in electric welding, and subclass 196 for processes of applying particles and a binder from different sources upon a base.

561 This subclass is indented under subclass 560. Subject matter in which a nonparticulate component is more than 50% nickel, copper or zinc, or a combination of two or three of these metals.

SEE OR SEARCH THIS CLASS, SUBCLASS:

558, for materials similar in their ultimate composition and function to those contained herein, and the search notes thereto.

562 This subclass is indented under subclass 560. Subject matter in which a nonparticulate component is more than 50% iron.

SEE OR SEARCH THIS CLASS, SUBCLASS:

558, for materials similar in their ultimate composition and function to those contained herein and the search notes thereto.

563 This subclass is indented under subclass 562. Subject matter in which the particulate component contains iron in element or combined form.

564 This subclass is indented under subclass 553. Subject matter in which a particulate metal component contains dispersed nonmetal particles.

SEE OR SEARCH THIS CLASS, SUBCLASS:

539.5, for a metal matrix interengaged with a nonmetal matrix.

545, for a composite having a component in which a metal matrix is interengaged with a nonmetal matrix.

556, for a composite having plural adjacent nonparticulate metal components and a particulate component which includes a nonmetal.

SEE OR SEARCH CLASS:

51, Abrasive Tool Making Process, Material, or Composition, particularly subclass 309 for an abrasive tool composition containing metal.

75, Specialized Metallurgical Processes, Compositions for Use Therein, Consolidated Metal Powder Compositions, and Loose Metal Particulate Mixtures, subclasses 230+ for a consolidated metal powder composition containing nonmetal.

188, Brakes, subclasses 251+ for composite brake shoes characterized by more than the composition of the layer.

219, Electric Heating, subclass 146 for structured electrodes of that class with fluxing or arc-shielding means.

427, Coating Processes, subclass 201 for methods of applying plural particulate materials to a base.

565 This subclass is indented under subclass 458. Subject matter in which a component contains nonmetal particles.

(1) Note. The inclusion in a component of metal particles which themselves contain a dispersed nonmetal, e.g., steel with carbon content, is not sufficient for placement in this subclass.

SEE OR SEARCH THIS CLASS, SUBCLASS:

556, for a composite having plural adjacent nonparticulate metal components and a particulate component which includes a nonmetal.

SEE OR SEARCH CLASS:

51, Abrasive Tool Making Process, Material, or Composition, particularly subclass 309 for process of making an abrading tool involving metal or metal oxide composition.

566 This subclass is indented under subclass 546. Subject matter specified as having pores which are interconnected with each other and unfilled.

(1) Note. Mere porosity in the product or a density less than theoretical is not sufficient for placement of a patent in this subclass; however, where the product is defined as “permeable” or a porosity of greater than 40% (density less then 60%) is claimed, it is assumed that the product has an interconnected void structure.

SEE OR SEARCH THIS CLASS, SUBCLASS:

539.5, and 567, for similar products in which the interconnected void structure is filled with a nonmetal substance or a different metal, respectively.

547, for a particulate metallic stock-material* in which the porosity varies.

613, for metallic stock-material* partially or wholly porous, which does not contain consolidated metal powder.

SEE OR SEARCH CLASS:

51, Abrasive Tool Making Process, Material, or Composition, particularly subclass 296 for a process or tool defined thereby including the step of forming pores of voids in the finished article, or abrading tool compositions including one or more materials which form pores or voids therein.

210, Liquid Purification or Separation, subclass 510.1 for a filter in the form of a porous unitary mass which is peculiar to that class (210).

429, Chemistry: Electrical Current Producing Apparatus, Product and Process, subclass 145 for a battery separator having plural layers of defined porosity.

567 This subclass is indented under subclass 546. Subject matter containing elongated elements in a defined relationship to each other (e.g., parallel) or in which matrix or continuous phase of one metal (usually a consolidated powder material having an interconnected "void" structure) is interengaged with a matrix or continuous phase of a different metal. The different metal is usually a nonparticulate, impregnating metal.

(1) Note. An elongated element is one having one dimension significantly larger than its other dimensions, e.g., fibrous, needle-like, rod-like, etc.

(2) Note. A mere elongation of the entire product is not sufficient for placement herein.

SEE OR SEARCH THIS CLASS, SUBCLASS:

539.5, for stock-material* having a metal continuous phase interengaged with a nonmetal continuous phase.

545, for the product which results when a consolidated metal powder material having an interconnected void structure is only partially impregnated with a nonmetal material.

550, for the product which results when a consolidated metal powder material having an interconnected void structure is only partially impregnated with a different metal.

556, for stock-material* of consolidated metal powder having an interconnected void structure.

SEE OR SEARCH CLASS:

29, Metal Working, subclass 527.2 for processes of applying or shaping of fluent coating material upon a base with an additional mechanical manufacturing step.

75, Specialized Metallurgical Processes, Compositions for Use Therein, Consolidated Metal Powder Compositions, and Loose Metal Particulate Mixtures, subclass 229 for a consolidated metal powder composition containing elongated elements in a random disposition.

205, Electrolysis: Processes, Compositions Used Therein, and Methods of Preparing the Compositions, subclass 150 for electrolytic coating processes for a metal powder compact.

419, Powder Metallurgy Processes, subclass 24 for processes for making articles from metal powder using pressure and heat wherein at least some of the metal particles are in the form of filaments or fibers.

427, Coating Processes, for impregnation processes, per se, especially subclasses 243+, 250+, 295, and 435+.

568 This subclass is indented under subclass 567. Subject matter containing one of the following, in free or combined solid form: a noble gas, a halogen, a chalcogen (oxygen, sulfur, selenium or tellurium), nitrogen, phosphorus, carbon or boron.

(2) Note. If, in the claims as a whole, the presence of a nonmetal is optional, the patent is placed in another subclass of 567+ and is not cross-referenced in this subclass.

SEE OR SEARCH CLASS:

51, Abrasive Tool Making Process, Material, or Composition, for a tool making process involving the use of metallic or metal compound materials.

569 This subclass is indented under subclass 567. Subject matter in which the product contains molybdenum or tungsten.

(1) Note. Where molybdenum and/or tungsten is not necessary in all of the claims, the patent is placed in another subclass of 567+ and is not cross-reference to this subclass.

SEE OR SEARCH CLASS:

310, Electrical Generator or Motor Structure, subclass 231 for rotary structures of that class.

570 This subclass is indented under subclass 544. Subject matter comprising unconsolidated (loose) composite metal powder.

(1) Note. See the definition of subclass 615, below, for an explanation of the term "composite".

(2) Note. While a loose mass of particles, each of which comprises a particular metal or alloy, coated with a different particular metal or alloy, is considered to be a stock-material* for this class and subclass, a consolidated mass of such particles or a mixture of such particles with other particles is considered to be a composition, and is classified in a composition class. See, in particular, the definition of Class 75, subclass 251.

SEE OR SEARCH THIS CLASS, SUBCLASS:

403+, for nonmetallic* coated particles. 924+, for a collection of patents which disclose the physical dimensions of composite metal stock-materials*, including composite powders.

SEE OR SEARCH CLASS:

75, Specialized Metallurgical Processes, Compositions for Use Therein, Consolidated Metal Powder Compositions, and Loose Metal Particulate Mixtures, subclasses 255+ for loose metal particle compositions and the definitions and notes thereto for the location of other patents which concern metal particles.

148, Metal Treatment, subclass 513 for processes of treating loose metal particles and subclass 514 for processes of treating previously consolidated metal particles and having no sintering of compacting step, for purposes of modifying or maintaining the internal physical structure (i.e., microstructure) or chemical properties of metal.

205, Electrolysis: Processes, Compositions Used Therein, and Methods of Preparing the Compositions, subclasses 80+ for electrolytic coating processes.

376, Induced Nuclear Reactions: Processes, Systems, and Elements, subclass 411 for coated nuclear fuel particles in a jacket or can.

427, Coating Processes, subclasses 212+, especially 216 and 217 for methods of coating particles.

502, Catalyst, Solid Sorbent or Support Therefor: Product or Process of Making, for a composition composing a catalyst or sorbent, per se, and see especially subclasses 300+ for a catalyst which may contain a metal powder.

571 This subclass is indented under subclass 544. Subject matter in which the material is provided, usually along its length, with portions of reduced tensile or fracture resistant properties, e.g., perforations, or with a machine-sensible configuration, at or near an edge, to permit ready or automatic disassociation of the material into smaller units.

(1) Note. In general, claimed recitation of an individual lead frame, per se, with or without electrical leads/connections thereto will not be classified herein, but in Class 257. To be classified in Class 428, the stock material will have to be claimed either as an individual lead frame without being labeled "lead frame", or the lead frame structure will have to be a strip of interconnected lead frames prior to separation into individual lead frames. Claimed recitation of any electrical leads/connections (nominally or in detail) in addition to the lead frame, or of electrical components (nominally or in detail) in addition to the lead frame, per se, will result in the subject matter being classified elsewhere, e.g., Classes 174, 257 or 361.

SEE OR SEARCH THIS CLASS, SUBCLASS:

43+, for a nonmetallic sheet, web or layer weakened to permit separation through its thickness.

131+, for a nonmetallic sheet or web including an aperture.

573, for materials of regular variation in width or thickness where the varia-

tions are not provided specifically for purposes of disassociation.

596, for perforated stock where the perforations are not provided specifically for purposes of disassociation or indexing.

SEE OR SEARCH CLASS:

29, Metal Working, subclass 413 for processes of obtaining plural pieces from a unitary piece by breaking through a weakened portion.

59, Chain, Staple, and Horseshoe Making, subclass 77 for staple blanks integrally connected by the metal from which they are made, which require further significant shaping in addition to severing to produce a single fastener.

174, Electricity: Conductors and Insulators, subclass 52.4 for lead frames combined with a housing for electrical components.

206, Special Receptacle or Package, subclass 83.5 for a set of articles put up as a mercentile unit.

257, Active Solid-State Devices (e.g., Transistors, Solid-State Diodes), subclasses 666+ for lead frames, per se, or combined with active solid-state electronic devices.

361, Electricity: Electrical Systems and Devices, subclass 421, for lead frames with plural diverse electrical components.

572 This subclass is indented under subclass 571. Subject matter in which the intended disassociation is in a direction perpendicular to the longitudinal direction of the material.

573 This subclass is indented under subclass 544. Subject matter wherein, an indeterminate number of times, at regular intervals, along the length of the material, the width or thickness varies or cuts are provided along a margin.

(1) Note. The mere provision of apertures or a roughened surface is not considered to be a variation in thickness.

(2) Note. A merely twisted structure is not considered to have a variation in width or thickness.

(3) Note. In general, claimed recitation of an individual lead frame, per se, with or without electrical leads/connections thereto will not be classified herein, but in Class 257. To be classified in Class 428, the stock material will have to be claimed either as an individual lead frame without being labeled "lead frame", or the lead frame structure will have to be a strip of interconnected lead frames prior to separation into individual lead frames. Claimed recitation of any electrical leads/connections (nominally or in detail) in addition to the lead frame, or of electrical components (nominally or in detail) in addition to the lead frame, per se, will result in the subject matter being classified elsewhere, e.g., Classes 174, 257 or 361.

SEE OR SEARCH THIS CLASS, SUBCLASS:

156+, for nonmetallic sheet or web material varying in thickness.

596, for metallic* stock-material* having one or more discrete through openings or cuts which may or may not be marginal.

SEE OR SEARCH CLASS:

30, Cutlery, subclass 346.56 for a toothed or waved-edge razor blade, and 355 for other toothed blades.

52, Static Structures (e.g., Buildings), subclass 314 for structure in which the exposed face gives the appearance of being formed of multiple units, this effect being gained by deformation or marking of the base material.

73, Measuring and Testing, subclass 421 for articles of that class (73) which are samplers or tollers.

174, Electricity: Conductors and Insulators, subclass 52.4 for lead frames combined with a housing for electrical components.

257, Active Solid-State Devices (e.g., Transistors, Solid-State Diodes), subclasses 666+ for lead frames, per se, or combined with active solid-state electronic devices.

361, Electricity: Electrical Systems and Devices, subclass 421, for lead frames with plural diverse electrical components.

574 This subclass is indented under subclass 573. Subject matter in which both the width and thickness vary regularly.

(1) Note. The width variation need not follow the same rhythm as the thickness variation.

(2) Note. Wire or bar stock which varies regularly, along its length, in the diameter of its cross section, is placed in this subclass.

SEE OR SEARCH THIS CLASS, SUBCLASS:

399, for a nonmetallic* rod, strand, filament or fiber whose cross section area varies along its length.

SEE OR SEARCH CLASS:

29, Metal Working, subclasses 76.1+ for files and rasps.

575 This subclass is indented under subclass 573. Subject matter having along its side edges, and extending to said edges, openings which are smaller in their longitudinal extent than they are in another dimension.

SEE OR SEARCH THIS CLASS, SUBCLASS:

571, for stock-material* having a marginal feature designed for calculating the length of the stock-material* or number of units into which it is to be divided, or for facilitating such division by automatic means.

576 This subclass is indented under subclass 544. Subject matter drawn to articles* comprising metal, with or without a nometal component, having a described configuration suitable for use in a particular process where the article is melted or fused.

SEE OR SEARCH THIS CLASS, SUBCLASS:

2, for other "packages" suitable for in toto disposal.

SEE OR SEARCH CLASS:

44, Fuel and Related Compositions, subclasses 530+ for a fuel product of defined shape or structure and subclass 541 for a bundled, covered or wrapper fuel composition.

75, Specialized Metallurgical Processes, Compositions for Use Therein, Consolidated Metal Powder Compositions, and Loose Metal Particulate Mixtures, subclasses 303+ for a flux composition which may be defined in terms of its shape, and subclasses 314+ for a consolidated composition (e.g., a briquette) which is to be used as a charge for a metallurgical furnace, the composition containing free metal dispersed in a nonmetal.

206, Special Receptacle or Package, subclass 83.5 for bales, including bales of metal scrap.

228, Metal Fusion Bonding, subclass 56.3 for an article adapted to be applied to work as a filler material.

577 This subclass is indented under subclass 544. Subject matter comprising an intermediate-article*.

(1) Note. If opposite surfaces of an article are defined as converging toward each other at one end, the length of the article is considered definite, for placement in this subclass.

(2) Note. "Recited end structure" means that a structural feature must be pointed out for at least two intersecting thickness surfaces of the article. Where "end" structure is recited without a recitation of "side" structure, the defined "ends" are considered "sides".

(3) Note. See the main definitions of this class (428), section VI, A, 2, for a listing of classes of subject matter which provide for their own blanks.

SEE OR SEARCH THIS CLASS, SUBCLASS:

34.1+, and 571, for a series of blanks connected together by a weakened por-

tion intrinsic to the material of which the blank is made.

542, for nonmetallic* blanks.

SEE OR SEARCH CLASS:

72, Metal Deforming, appropriate subclasses for methods of deforming metal blanks.

83, Cutting, subclass 55 for blanking processes.

578 This subclass is indented under subclass 577. Subject matter in which the article has a length and a width each of which is greater than its thickness, has a finite perimeter, and has a margin which is other than four straight sides meeting each other at right angles.

SEE OR SEARCH THIS CLASS, SUBCLASS:

80+, for other nonrectangular sheets.

SEE OR SEARCH CLASS:

52, Static Structures (e.g., Buildings), subclasses 656.1+ for a frame, per se.

285, Pipe Joints or Couplings, subclass 424 for coupling stock-material* originally in sheet form.

579 This subclass is indented under subclass 577. Subject matter in which the panel has a substantially circular edge configuration.

SEE OR SEARCH THIS CLASS, SUBCLASS:

64.1+, for other nonmetal* circular sheets.

SEE OR SEARCH CLASS:

74, Machine Element or Mechanism, subclasses 434+ for structure and details of rotary bodies, per se, constituting gearing elements.

292, Closure Fasteners, subclass 357 for doorknob rose plates.

301, Land Vehicles: Wheels and Axles, subclasses 5.1+ for wheels.

313, Electric Lamp and Discharge Devices, subclasses 346 and 355 for coated or laminated electrodes or shields having structures peculiar to Class 313.

580 This subclass is indented under subclass 578. Subject matter having a plane of symmetry and a correspondence in size, shape and relative position of parts such that if a plane mirror is placed in the plane of symmetry, parallel to a thickness surface or perpendicular to a non-thickness* surface of the article, half the object, plus the mirror image of this half, appears the same as the entire object.

SEE OR SEARCH CLASS:

277, Seal for a Joint or Juncture, subclass 325 for a radially actuated segmented seal (e.g., ram type, etc.) for a well overpressure control device (e.g., seal for a blowout preventer, etc.), subclass 344 for a segmented radially actuated packer (e.g., oil saver, gas saver, etc.) for above ground apparatus of a well, subclass 493 for a segmented piston ring, subclass 533 for a dynamic segmented seal having a wedging surface contained or compressed by gland member in a packing box, or subclasses 543+ for a dynamic segmented circumferential contact seal for other than a piston.

581 This subclass is indented under subclass 580. Subject matter in which the mirror can be placed in only one position to reveal the symmetry.

SEE OR SEARCH CLASS:

74, Machine Element or Mechanism, subclass 607 for an axle and torque tube casing having structure limited to uses of that class.

582 This subclass is indented under subclass 577. Subject matter which is (1) provided with a rim, collar or other flat projection which stands out beyond the main body of the article, or (2) provided with means for holding the article, e.g., during late processing, or (3) having a configuration which provides for interlocking among a plurality of identical articles.

SEE OR SEARCH THIS CLASS, SUBCLASS:

33, for an article made of plural parts interlocking or temporary attachment means.

81+, 121+ and 192+, for a sheet or web having an edge feature which may be a projection.

99+, for a sheet or web having a fastener for attachment to an external surface.

SEE OR SEARCH CLASS:
29, Metal Working, subclass 428 for assembly and/or joining of metal parts by bending of flanges, etc.
174, Electricity: Conductors and Insulators, subclasses 73 and 74 for cables, conduits and conductors combined with attaching means at a joint or end structure.
267, Spring Devices, subclasses 260+ for a leaf spring having a connecting feature at an end.

583 This subclass is indented under subclass 577. Subject matter in which (1) article is held together by a separate and distinct mechanical fastener extending over the edge of the article, or into a plurality of layers of the article, or by bonding only the edges of the article, or (2) in which the article is distinguished by a configuration, within one-third of its either end, which differs from its configuration in its central one-third, or (3) opposite surfaces of the article tend to converge.

SEE OR SEARCH THIS CLASS, SUBCLASS:
83, and 122, for a nonmetallic* sheet or web with a channel-shaped edge component.
88, and 194, for a nonmetallic* sheet or web with an edge feature, or a configured or discontinuous surface.
157, for a nonmetallic* sheet or web wherein the difference occurs only at, or in the area adjacent, an edge of the sheet or web.
594, for indefinite length metallic* material held together in the same manner.

SEE OR SEARCH CLASS:
53, Package Making, appropriate subclasses for methods and apparatus for tying metal scrap into bundles.
138, Pipes and Tubular Conduits, subclasses 156+ for longitudinally seamed tubing.
206, Special Receptacle or Package, subclass 83.5 for bales, including bales of metal scrap.
473, Amusement Devices; Games, subclasses 316+ for a golf club shaft.

584 This subclass is indented under subclass 583. Subject matter in which the end feature is qualitatively the same at both opposite ends of the article.

(1) Note. The feature need not be quantitatively the same, e.g., both ends may taper, but at different angles.

585 This subclass is indented under subclass 583. Subject matter in which the end feature is one in which either the thickness surfaces or the nonthickness surfaces, or both, of the article, approach each other towards an end.

SEE OR SEARCH THIS CLASS, SUBCLASS:
582, for ingots having a feature for interlocking with each other.
599, for ingots which are not defined as tapering, but which may have fluted sides or similar features.

SEE OR SEARCH CLASS:
164, Metal Founding, subclasses 271+ for means to shape a metallic ingot.
249, Static Molds, subclass 174 for container-type molding device for forming an ingot.
254, Implements or Apparatus for Applying Pushing or Pulling Force, subclass 104 for a wedge, per se.

586 This subclass is indented under subclass 544. Subject matter drawn to stock-material* which is to be worked upon in a metal-working or similar operation, which contains therein an empty longitudinal passageway insufficient to form a conduit or a material, usually nonmetal, which is resistant to bonding to the adjacent metal when subjected to heat and/or working.

SEE OR SEARCH THIS CLASS, SUBCLASS:
34.1+, and 188, for nonmetallic* stock-material* having a longitudinal or transverse tubular or cavity.
595, for stock-material* having a channel shape.

SEE OR SEARCH CLASS:

72, Metal Deforming, subclasses 54+ for effecting mechanical treatment of metal work by the development of pressure within a granular or particulate or soft metal material which may be confined within said metal work, e.g., a hollow workpiece.

138, Pipes and Tubular Conduits, appropriate subclasses for tubular stock-material* and for tube and ring blanks which are themselves tubes which can conduct a fluid.

587 This subclass is indented under subclass 544. Subject matter comprising stock-material* which (a) is of irregular cross-section, that is, not a circle or a regular polygon, (b) is to be modified in its cross-sectional shape by a manufacturing operation, and (c) produces a finished stock-material* which has a cross-sectional shape irregular in the same fashion as the starting material.

SEE OR SEARCH THIS CLASS, SUBCLASS:

573+, 598, 599, and 600+, for other stock-material* of nonregular cross section.

588 This subclass is indented under subclass 544. Subject matter comprising a web or sheet made of longitudinally parallel layers or components, at least some of which are not fastened to any other component.

(1) Note. Generally a subsequent manufacturing operation bonds the layers or component together.

(2) Note. Provision for gravity alone to hold the pile together is not considered fastening.

SEE OR SEARCH THIS CLASS, SUBCLASS:

54+, for a longitudinally arranged layer of three or more sections, which may or may not be fastened to each other.

77+, for a sheet facing and longitudinally noncoextensive with a web or other sheet.

105, and 114, for a sheet or web, including elements in different layers or components which are in angular or parallel relation to each other and in which some of the layers or components may or may not be fastened to each other.

184+, for a plurality of nonplanar uniform-thickness sheets or webs which need not be fastened to each other.

576, for an article or similar stock-material* so shaped as to facilitate melting.

594, for similar stock-material* tied into bundles or spot-welded.

SEE OR SEARCH CLASS:

206, Special Receptacle or Package, subclass 83.5 for bales, including bales of metal scrap.

405, Hydraulic and Earth Engineering, subclasses 231+ for columnar structures of that class also called “piles”.

414, Material or Article Handling, subclass 10.5 for piles or other arrangements of articles designed to promote efficient handling.

589 This subclass is indented under subclass 588. Subject matter in which at least one component is so gripped by one or more other component(s), usually all along its length, that lateral displacement of the one component (usually during subsequent processing) is prevented or minimized.

SEE OR SEARCH THIS CLASS, SUBCLASS:

44+, for a layer of three or more discrete and identifiable parts which may or may not be fastened.

54+, for a product formed of three sections joined so as to extend longitudinally, which may or may not be fastened.

590 This subclass is indented under subclass 588. Subject matter in which a web or sheet is made of composite* stock.

SEE OR SEARCH THIS CLASS, SUBCLASS:

615, for composite* metallic stock distinguished only by the composition of its components*.

591 This subclass is indented under subclass 544. Subject matter having plural components and means for one component to move, relative to another component.

(1) Note. The motion is generally limited to that necessary to provide flexibility in the material or to prevent breakage due to installation or temperature change in the material.

(2) Note. The means must be a physically distinct means, not merely another component, definable merely in terms of its composition.

SEE OR SEARCH THIS CLASS, SUBCLASS:

101, for nonmetallic* stock-material* having superposed movably attached layers or components.

617, for temperature deflectable composite* stock-material* provided with a component, generally a layer, of temperature-expansive characteristics such as to prevent separation of the main components.

SEE OR SEARCH CLASS:

164, Metal Founding, subclass 90 for processes of that class for forming a product having interconnected movable parts.

267, Spring Devices, appropriate subclasses for devices of that class having parts which are relatively movable.

403, Joints and Connections, subclasses 220+ for flexibly connected rigid members of that class.

592 This subclass is indented under subclass 544. Subject matter which is regularly curled, twisted, or flat-wound, or which contains a twisted or flat-wound component, inside or outside another component.

(1) Note. A mere statement that the entire stock-material* is a "coil" is not sufficient for placement in this subclass.

SEE OR SEARCH THIS CLASS, SUBCLASS:

37, 222, 371, and 377, for nonmetallic* sheet, web, rod, strand, filament or fiber that is of spiral form or includes a spirally coiled component.

906, for a collection of patents which concern coiled stock-material*.

SEE OR SEARCH CLASS:

5, Beds, subclasses 239+, 246+ and 254+ for springs of that class.

29, Metal Working, subclass 20.1 for spiral cutting of flat stock, and subclass 173 for manufacture of springs.

52, Static Structures (e.g., Buildings), subclass 740.8 for an elongated rigid structure of the sinuous curve type, and subclasses 740.6+ for an axially twisted-type elongated rigid structure.

57, Textiles: Spinning, Twisting, and Twining, subclasses 200+ for twisted stock-materials* of indefinite length, made from filamentary or fibrous material, e.g., metal fibers, filaments or wires, or stock-materials* made by helically wrapping a cover about a filamentary or fibrous core.

72, Metal Deforming, subclasses 135+ for processes of that class directed to forming a helical coil or tube, and subclasses 146+ for forming a spiral coil.

87, Textiles: Braiding, Netting, and Lace Making, appropriate subclasses, for stock-material* made by a process of that class, even when the braided material is only a component of a composite; it should be noted, however, that stock-material* which is made by a process which goes significantly beyond Class 87, e.g., which includes steps for bonding the braided fibers to each other or to another component, are generally classified in this class (428).

138, Pipes and Tubular Conduits, subclass 154 for spirally seamed tubing.

174, Electricity: Conductors and Insulators, subclass 29 for conduits, cables and conductors of the coaxial or concentric type with spiral spacers, subclass 108 for such materials having

spirally applied conductive armor or sheathing, and subclass 128.1 for a plural-strand conductor.

178, Telegraphy, subclasses 45+ for wave-transmission systems having conductors or lines loaded with inductance coils.

245, Wire Fabrics and Structure, subclass 6 for fabrics comprising a plurality of connected helical coils.

267, Spring Devices, subclasses 166+ for coil springs.

313, Electric Lamp and Discharge Devices, subclass 344 for coiled filament or resistance-heated electrodes.

336, Inductor Devices, appropriate subclasses, especially subclasses 255+ for helical components of that class.

338, Electrical Resistors, subclasses 296+ for a helical or wound-resistance element.

374, Thermal Measuring and Testing, subclass 207, for a bimetallic thermometer having a helical member.

492, Roll or Roller, subclass 43 for a roll having a spiral member, and subclass 44 for a roll having a helical member.

593 This subclass is indented under subclass 544. Subject matter including a plurality of layers or components (a) wherein at least two of said layers or components include substantially parallel, narrow, elongated elements, such as strips, strands filaments, corrugations, grain fibers, grain crystals, etc., with such elements of one layer or component being arranged in defined angular relationship to those elements of the other, or (b) including discrete elements (e.g., tubular constituents) or component which form, or cooperate to form, cells, including filled cells, having longitudinal axes which are at an angle to the nonthickness surface of the stock-material.

(1) Note. Curvilinear or polygonal openings in an otherwise integral layer of material are not considered elongated elements for this subclass. See particularly subclasses 596+, below.

(2) Note. This subclass does not include mere plural layers of textile material without a specific description of the angular relationship between the fibers of the different layers or components.

SEE OR SEARCH THIS CLASS, SUBCLASS:

73, and 116+, for other honeycomb-like materials.

105, for a sheet or web including grain, strips or filamentary elements in respective layers or components in angular relation.

114, for a sheet or web including grain, strips or filamentary elements in different layers or components parallel.

178, for a nonplanar, uniform-thickness material forming or cooperating to form, cells.

SEE OR SEARCH CLASS:

52, Static Structures (e.g., Buildings), subclasses 782.1+ for a composite building panel having a disparate edging, and subclasses 720.1+ for a building component having an elongated rigid structure.

148, Metal Treatment, subclasses 400+ for a metallic* material having a grain structure brought about by a treatment of that class.

449, Bee Culture, subclasses 44+ for honey comb to be used in a bee hive.

594 This subclass is indented under subclass 544. Subject matter in which at least one component or layer has spaced areas, substantially less than the total area of the involved surface of the layer or component, which are joined to another layer or component by adhesion or cohesion or by a separate and distinct mechanical connection member(s) extending over the edges of, and/or into, a plurality of layers or components.

(1) Note. This definition is not applicable to merely interengaged fibrous constituents which are bonded at their points of interengagement.

SEE OR SEARCH THIS CLASS, SUBCLASS:

102, and 223, for a nonmetallic* composite* web or sheet in which a plurality of layers or components are joined to

each other by a plurality of spaced mechanical fasteners.

103+, 194 and 198, for plural-layer nonmetallic* material in which layers are joined to each other by discontinuous or spaced bonds.

576, for a shaped configuration or package of metal parts designed for melting.

583, for an intermediate-article* having a discrete fastener or marginal fastening.

SEE OR SEARCH CLASS:

52, Static Structures (e.g., Buildings), subclasses 782.1+ for a composite panel having a mechanical fastener holding the facing sheets in assembled relationship, and subclasses 726.1+ for an elongated rigid structure comprising axially aligned sections with a fastener at the junctions.

109, Safes, Bank Protection, or a Related Device, subclasses 58+ for wall and panel structures, closures and closure adjuncts, especially subclasses 59+ and 79 for such devices including a fastening means.

138, Pipes and Tubular Conduits, subclass 147 for subject matter of that class having mechanical means to hold layers in contact.

206, Special Receptacle or Package, subclass 83.5 for a bale of scrap metal, and subclass 442 for a package of bale ties.

219, Electric Heating, subclasses 86+ for spot-bonding methods of that class.

403, Joints and Connections, subclasses 405+ for a separate connector or fastener between two or more members at substantially a single locus.

595 This subclass is indented under subclass 544. Subject matter wherein sheet or web material of uniform thickness is turned back upon itself through an angle of greater than 90°, or in which equal, longitudinal margin portions are bent perpendicular to the plane of the connecting portion.

(1) Note. The description of a stock-material* merely as "arcuate" is not enough for placement in this subclass.

SEE OR SEARCH THIS CLASS, SUBCLASS:

121+, for nonmetallic* sheet or web material having a fold at its edge.

603, for metallic* stock-material* having a V-shaped or L-shaped cross section.

SEE OR SEARCH CLASS:

49, Movable or Removable Closures, subclasses 475.1+ for weatherstrip devices.

52, Static Structures (e.g., Buildings), subclasses 782.1+ for a composite building panel having a disparate edging.

174, Electricity: Conductors and Insulators, subclasses 126.1+ for conductor structure peculiar to that class.

238, Railways: Surface Track, subclasses 56, 59+ and 62+ for a railroad tie having a channel-shaped configuration.

293, Vehicle Fenders, subclasses 102+ for an automobile bumper.

405, Hydraulic and Earth Engineering, subclass 277 for sheet-piling made up of C-shaped sections.

596 This subclass is indented under subclass 544. Subject matter wherein the stock-material* or a component* thereof has one or more discrete through openings, with the peripheral wall or walls of each opening defined by either a line or closed loop passing through the thickness of the material or component in a undirectional rectilinear path.

SEE OR SEARCH THIS CLASS, SUBCLASS:

66.6, and 131+, for corresponding nonmetallic* material, and the notes to subclass 131 for an explanation of the above definition.

546, 605 and 613, for porous stock-material*.

609, for metallic* stock-material* in which an aperture in one layer is filled with material integral with another layer.

SEE OR SEARCH CLASS:

29, Metal Working, subclass 6.1 for processes of manufacturing other multiperforate metal.

30, Cutlery, subclass 346.61 for blades which are apertured or notched.

52, Static Structures (e.g., Buildings), subclasses 633 and 660+ for fabric or lattice articles, usually used in the construction trades, especially subclass 670 for expanded metal and subclass 673 for perforated metal.

72, Metal Deforming, subclass 325 for methods of piercing by a compound tool.

83, Cutting, appropriate subclasses, especially subclass 30 for puncturing methods.

156, Adhesive Bonding and Miscellaneous Chemical Manufacture, subclasses 7+ for differential etching processes, and subclasses 510+ for surface bonding or assembling means with cutting, punching, piercing, or tearing means.

204, Chemistry: Electrical and Wave Energy, subclasses 283 and 284 for perforated or foraminous electrodes.

205, Electrolysis: Processes, Compositions Used Therein, and Methods of Preparing the Compositions, subclass 75 for electroforming of perforated or foraminous articles.

219, Electrical Heating, subclass 384 for arc-type devices with perforating means.

245, Wire Fabrics and Structure, subclasses 2+ for analogous stock-materials* made by bending wires.

429, Chemistry: Electrical Current Producing Apparatus, Product, and Process, subclasses 241+ for an open mesh or perforated plate battery grid.

597 This subclass is indented under subclass 596. Subject matter wherein the web or sheet or a component thereof, has one or more portions which project or protrude from a nonthickness surface of the component and form at least a part of the periphery of a through opening therein.

SEE OR SEARCH THIS CLASS, SUBCLASS:

132+, for a corresponding nonmetallic* sheet, web or component.

SEE OR SEARCH CLASS:

52, Static Structures (e.g., Buildings), subclasses 740.6+ for a rigid elongated structure with struck out projections.

598 This subclass is indented under subclass 544. Subject matter wherein the material has a variation in thickness representable by an alphabetical symbol having a crossbar more or less perpendicular to another stroke of the letter, e.g., E, F, H, I, K, T, X or Y.

SEE OR SEARCH THIS CLASS, SUBCLASS:

156+, for corresponding nonmetallic* sheet or web materials, and subclasses 397+ for rods of particular cross section.

595, for C- or U-shaped cross-section stock.

603, for stock-material* appearing, in cross section, like the letters, G, J, L, N, S, V, W, or Z.

SEE OR SEARCH CLASS:

52, Static Structures (e.g., Buildings), subclasses 311.1+ especially subclass 316 for a structure of that class having a relief or intaglio surface deformation, subclass 719 for crossed reinforcing rods with a connector, and subclass 729 for a shaft or elongated rigid structure of I-shape cross section.

72, Metal Deforming, appropriate subclasses for processes and apparatus for changing the shape or size of metal work mechanically, without removal of material therefrom.

138, Pipes and Tubular Conduits, appropriate subclasses for stock-material* appearing in cross section like the letters A, B, D, O, P, Q and R.

238, Railways: Surface Track, subclasses 57 and 65+ for railroad ties of I-shape cross section, subclasses 58 and 67 for ties of T-shape cross section and subclass 130 for T-shaped rails.

405, Hydraulic and Earth Engineering, subclass 277 for metallic sheet-piling having I-shaped sections.

599 This subclass is indented under subclass 544. Subject matter drawn to stock-material* in which the surface configuration of at least two nonopposite surfaces or an angle therebetween, is defined.

(1) Note. Wires, rods and tubes of uniform circular cross section are specifically excluded from this subclass.

SEE OR SEARCH THIS CLASS, SUBCLASS:
177+, for nonmetallic* rods for particular cross section.
577, for ingots of definite length, e.g., tapered.

SEE OR SEARCH CLASS:
76, Metal Tools and Implements, Making, subclasses 101.1+ for processes and blanks of that class.
228, Metal Fusion Bonding, subclass 142 for a surface bonding process of that class involving mitering the corners of a workpiece.
419, Powder Metallurgy Processes, subclasses 1+ for powder metallurgy processes which include sintering.

600 This subclass is indented under subclass 544. Subject matter wherein the distance between the nonthickness surfaces of the stock-material* varies or the cross-sectional shape or area of a rod or wire varies along its length.

(1) Note. A mere outer fibrous layer is <u>not</u> covered by this definition.

SEE OR SEARCH THIS CLASS, SUBCLASS:
156+, for a nonmetallic* sheet or web which varies in thickness.
573, for a metallic* stock-material* having a thickness variation which regularly repeats longitudinally.
609, for a metallic* stock-material* in which an individual component of a composite may vary in thickness in order to make up for thickness variation in another component.

SEE OR SEARCH CLASS:
29, Metal Working, subclass 457 for processes of mechanical manufacture involving ribbing.
30, Cutlery, subclasses 346+ for blades of that class.
72, Metal Deforming, subclasses 362+ for a process which may involve varying the thickness of metal work.
156, Adhesive Bonding and Miscellaneous Chemical Manufacture, subclasses 7+ and 18+ for etching processes which may result in an article having a variation in thickness.

601 This subclass is indented under subclass 600. Subject matter in which the thickness variation of the material is due, at least in part, to the presence at the surface of the material of a component which does not cover the entire surface of the material.

(1) Note. This subclass only provides for the metal preform to be subsequently used in a printed circuit. If such a preform is labeled a "printed circuit" in a claim, but only the preform structure is positively recited, proper classification is in Class 428.

SEE OR SEARCH THIS CLASS, SUBCLASS:
141+, for nonmetallic* stock-material* having a nonuniform layer or component.

SEE OR SEARCH CLASS:
29, Metal Working, subclasses 846+ for methods of making a printed circuit on a planiform insulator.
174, Electricity: Conductors and Insulators, subclasses 250+ for structured conductors, conduits and cables in a preformed panel circuit arrangement, and subclasses 126.1+ for conductor structures peculiar to that class.

602 This subclass is indented under subclass 600. Subject matter devoid of irregularities (projections or depressions) along its length, and having a plane of symmetry.

SEE OR SEARCH THIS CLASS, SUBCLASS:

577, for intermediate articles, e.g., blanks, which are symmetrical and may be longitudinally smooth.

SEE OR SEARCH CLASS:

76, Metal Tools and Implements, Making, subclasses 101.1+ for blanks and processes of that class.

249, Static Molds, subclass 174 for an ingot-forming container-type mold.

603 This subclass is indented under subclass 544. Subject matter wherein the stock-material* or a component thereof has nonthickness surfaces where are (a) defined other than by two parallel flat planes and (b) equidistantly spaced at all points or comprising a strand of uniform diameter having portions laterally displaced from other portions.

SEE OR SEARCH THIS CLASS, SUBCLASS:

130, for a nonmetallic* sheet, web or component thereof which has a particular fold at its edge, e.g., L- shaped.

174+, for nonmetallic*, nonplanar, uniform-thickness material.

362, and 369+, for a nonmetallic* rod, strand or fiber which, in the longitudinal axis, follows a curvilinear or multidirectional path.

592, for metallic strands which are curled, twisted or flat-wound.

612, for stock-material* having a rough interface between layers.

SEE OR SEARCH CLASS:

52, Static Structures (e.g., Buildings), subclass 631 for a component of that class which is a laminate with a bent facing.

72, Metal Deforming, subclasses 127+ for processes of curving or troughing material during movement.

238, Railways: Surface Track, subclass 58 for railroad ties having an angle cross section.

604 This subclass is indented under subclass 603. Subject matter having elongated nonplanarities which intersect, or having projections through not all of which a single line can be drawn.

SEE OR SEARCH THIS CLASS, SUBCLASS:

179+, especially subclasses 180, 183 and 185 for nonmetallic* stock-material* having intersecting corrugations or nonaligned dimples.

SEE OR SEARCH CLASS:

30, Cutlery, subclass 355 for a blade of that class of waved configuration.

156, Adhesive Bonding and Miscellaneous Chemical Manufacture, subclass 462 for indefinite-length flexible webs including corrugating means.

174, Electricity: Conductors and Insulators, subclasses 106+ for a corrugated composite conductive armor or sheath.

605 This subclass is indented under subclass 544. Subject matter of overall indeterminate shape having as its only continuum, network of flexible, narrow elongated constituents, usually intertangled or interengaged.

(1) Note. See the main class definition, section VI, C, 2, a and VI, C, 2, b for the locus of patents to fibrous materials having an ordered interengagement of fibers, e.g., metal textiles, etc.

(2) Note. Patents classified herein are not cross-referenced to subclass 606.

SEE OR SEARCH THIS CLASS, SUBCLASS:

606, for individual filaments smaller than 6 mils.

608, 611 and 614, for metallic webs or sheets having other continual and containing fibers.

SEE OR SEARCH CLASS:

15, Brushing, Scrubbing, and General Cleaning, subclass 209 for steel-wool implements of that class.

29, Metal Working, subclass 415 for apparatus and processes for manufacturing metal wool.
267, Spring Devices, subclass 147 for a device of that class comprising compressed wire mesh, and subclass 148 for a device comprising a fibrous metallic body.

606 This subclass is indented under subclass 544. Subject matter consisting of flexible material having a claimed entire dimension of 6 mils (0.006 inches; 0.01524 cm; 152.4 micron; 152,400 angstroms) or less, or greater gauge than 34. Reference: Metals Handbook, 8th Edition, Volume 1 (1961), page 18.

(1) Note. An article or material defined as a metal foil, leaf or film, without any numerical reference to its thickness is placed in these subclasses (606+).

(2) Note. A patent is not placed in this subclass because of a mere component which meets the definition of the subclass.

(3) Note. See the main class definition of this class (428), section VI, C, 2, a, for loci of other subject matter relating to filaments.

SEE OR SEARCH THIS CLASS, SUBCLASS:
220, for a nonmetallic* sheet or web where the entire dimension is claimed for the complete product, which may or may not be smaller than 6 mils.
401, and 903, for a structurally defined nonmetallic* filament which may or may not be smaller than 6 mils.
605, to complete a search for metal filaments.
923, for a collection of metallic and stock-materials* having specified dimension.

SEE OR SEARCH CLASS:
29, Metal Working, subclasses 17.1+ for foil and thin sheet-metal making.
126, Stoves and Furnaces, subclass 19 for foil or film components in an oven part.
205, Electrolysis: Processes, Compositions Used Therein, and Methods of Preparing the Compositions, subclasses 76+ for electroforming of films.
433, Dentistry, subclass 227 for a dental filling made of foil.

607 This subclass is indented under subclass 606. Subject matter in which the foil or filament is a composite.

SEE OR SEARCH THIS CLASS, SUBCLASS:
615+, for composite* metallic* stock-material* which may have a foil component.
924+, for a collection of composite* metallic* stock-material* products in which a dimension is specified.

608 This subclass is indented under subclass 544. Subject matter which includes a layer or component comprising fibers, strands, etc., mechanically intertangled, interwoven, intertwined or interlooped, or included between other layers.

(1) Note. See the main class definition of this class (428) for loci of other subject matter relating to interengaged fibers.

SEE OR SEARCH THIS CLASS, SUBCLASS:
85+, 175, 190, 193, 196, 197, 222, and 365, for a nonmetallic* stock-material* in which a component has interengaged fibers, or in which a fibrous layer is between other layers.
605, for a mass or layer consisting entirely of interengaged fibers.
614, for similar stock-material* where the fibers, strands, etc., are not interengaged, e.g., are parallel.

SEE OR SEARCH CLASS:
57, Textiles: Spinning, Twisting, and Twining, subclasses 200+ for twisted strand structures.
63, Jewelry, subclasses 3+ for an ornament in the form of a bracelet, which may embody metal fibers.
169, Fire Extinguishers, subclass 42 for an article* of that class comprising a plu-

rality of interengaging elements held in position by a fusible substance.

174, Electricity: Conductors and Insulators, subclasses 128.1+ for plural-strand conductors.

245, Wire Fabrics and Structure, subclasses 1+ for a fabric of that class.

313, Electric Lamp and Discharge Devices, subclasses 343+ for filaments and electrodes composed of a plurality of interengaged wires or strands.

442, Fabric (Woven, Knitted, or Non-woven Textile or Cloth, etc.), for a fabric containing layer.

609 This subclass is indented under subclass 544. Subject matter comprising a plurality of layers or material having an interface between layers which is (1) nonplanar and noncylindrical, and (2) apparent to the naked eye.

(1) Note. Both contiguous layers or other components must conform to the irregularity.

SEE OR SEARCH THIS CLASS, SUBCLASS:

138+, for a sheet or web containing at least one apertured component and one imperforate component.

171+, for a nonmetallic* sheet or web which varies in thickness, and which has a component conforming to the contours of a nonplanar surface.

567, for a stock-material* made by impregnating a metal into a consolidated metal powder composition having an interconnected void structure.

588, for a workpiece which may have an irregular interface between parallel nonfastened components.

612, for similar subject matter where the irregularity is merely a defined roughness or wave-form not apparent to the naked eye.

614, for a metallic* stock-material* having a component complete embedded within another component.

SEE OR SEARCH CLASS:

109, Safes, Bank Protection, or a Related Device, subclass 85 for metallic composite walls and panels of that class, plural parts of which are secured together along a common interface.

403, Joints and Connections, subclasses 345+ for interfitted members of that class.

610 This subclass is indented under subclass 544. Subject matter wherein the composition of the stock-material* varies gradually from being one composition to being another composition, without the formation of distinct layers, or wherein such variation takes place within a single layer of the material, or wherein such a variation occurs in the density of the material or layer.

(1) Note. The gradual nature of the composition variation must be explicit for the patent to be classified herein.

(2) Note. In regard to a “diffusion” layer in a metallic composite, see the definition to subclass 615, (6) Note.

SEE OR SEARCH THIS CLASS, SUBCLASS:

170, for a nonmetallic* sheet, web or component which varies in thickness and density.

217, and 218, for a nonmetallic* stock-material* product having distinct layers of differing hardness or density.

547, for particulate metal stock having a composition, or density gradient.

941, for a collection of patents which concern metallic stock produced by a method which includes solid state diffusion of metals to the disappearance of an original layer.

SEE OR SEARCH CLASS:

51, Abrasive Tool Making Process, Material, or Composition, for an abrasive tool making composition comprised of metal or metal oxide.

148, Metal Treatment, appropriate subclasses for processes of treating metal to modify or maintain the internal physical structure (i.e., microstructure) or chemical properties of metal and which may result in a gradual variation in composition with or without formation of distinct layers but

identified in terms of the separate compositions. See Class 148, subclasses 206+, for processes of carburizing or nitriding metal; subclasses 240+ for reactively coating of metal; or subclasses 516 for processes of treating layered metal stock or article. If metal casting, fusion bonding, machining, or working is involved, there is a requirement of significant heat treatment as described in section III, A, of the Class 148 definition.

611 This subclass is indented under subclass 544. Subject matter in which a shaped stock-material* has the direction of preformed fibers which have been incorporated into the article or magnetic coordinated with its shape.

SEE OR SEARCH THIS CLASS, SUBCLASS:

105+, 114 and 593, for a composite* having grain, strips or filamentary material in different layers, or components in an angular relation, e.g., parallel, etc.

800 through 848.9 , for magnetic recording component or stock.

910, for a collection of patents drawn to nonmetallic* materials having molecules oriented in a particular direction.

928, for a collection of metallic* magnetic stock-materials*.

SEE OR SEARCH CLASS:

148, Metal Treatment, subclasses 40+ for metal compositions of defined grain structure or magnetic properties produced by a process of that class, subclasses 100+ for certain processes of developing, improving, modifying or preserving magnetic properties in magnetic materials, and subclass 404 for directionally solidified alloys which may have precipitates in the form of long fibers.

174, Electricity: Conductors and Insulators, subclasses 129+ for plural strand assemblies of that class, having noncircular cross sections, and subclasses 133+ for other noncircular strand sections.

252, Compositions, subclass 62.55 for a nonmetal magnetic composition containing some free metal.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 296+ for magnet structure.

420, Alloys or Metallic Compositions, appropriate subclasses for alloys which are defined broadly as “magnetized” or “permanent magnet” as well as alloys which are inherently magnetic.

612 This subclass is indented under subclass 544. Subject matter comprising a plurality of layers of material having an interface which is greater in area than would be obtained by the mating of two smooth surfaces.

SEE OR SEARCH THIS CLASS, SUBCLASS:

609, for an interface with macroscopic irregularities.

SEE OR SEARCH CLASS:

156, Adhesive Bonding and Miscellaneous Chemical Manufacture, subclasses 2+ for processes of etching resulting in a roughened surface.

205, Electrolysis: Processes, Compositions Used Therein, and Methods of Preparing the Compositions, subclasses 640+ for electrolytic erosion of a workpiece to change its shape or surface configuration and subclasses 687+ for electrolytic material treatment, in general.

613 This subclass is indented under subclass 544. Subject matter comprising at least in part, a nonfibrous, nonparticulate material which contains tiny openings, often microscopic, through which certain fluids may pass. Generally the pore opening is of such irregular direction and small dimension that light will not pass through the porous component without distortion or diffusion.

(1) Note. An originally porous material, the pores of which have been filled, is not considered to be porous.

SEE OR SEARCH THIS CLASS, SUBCLASS:

155, for a nonmetallic* sheet, web or component which contains crevices of relatively small lateral dimensions extending thereto, but not therethrough.

158+, for a nonmetallic* sheet or web varying in thickness and having a foamed or cellular component.

304+, for a nonmetallic* sheet or web with a second component that is either porous or cellular. See especially subclasses 310+ for foamed or expanded material.

539.5, for the product which results when a metal or nonmetal composition, having an interconnected void structure, is impregnated with a nonmetal or metal composition, respectively, in a fluent form.

546+, for stock-material* of or containing consolidated metal powder, which materials often are porous, especially subclass 550 for such materials specified as having a porous component.

596, for stock-material having apertures, that is, openings which generally permit the passage of undiffused light.

605, for fibrous masses which generally are porous.

SEE OR SEARCH CLASS:

51, Abrasive Tool Making Process, Material, or Composition, subclass 296 for a tool making process or composition involving pore-forming.

75, Specialized Metallurgical Processes, Compositions for Use Therein, Consolidated Metal Powder Compositions, and Loose Metal Particulate Mixtures, subclasses 228+ for consolidated metal powder compositions, which compositions often are porous.

106, Compositions: Coating or Plastic, subclasses 601+ for porous articles comprising alkali metal silicate; subclasses 672+ for porous cement, slag, and plaster compositions; and subclass 122 for porous organic compositions within the class (106) definition.

164, Metal Founding, subclass 79 for a process of that class employing a pore-forming agent.

429, Chemistry: Electrical Current Producing Apparatus, Product and Process, subclass 145 for a battery separator having plural layers of defined porosity.

501, Compositions: Ceramic, subclasses 39 and 80+ for pore-forming compositions.

614 This subclass is indented under subclass 544. Subject matter in which at least one side edge of a layer or component of a composite sheet or web is laterally offset relative to a corresponding edge of a second layer or component of the product.

(1) Note. The mere provision of a coating on a thickness of the surface, as well as a nonthickness surface of bar stock is not sufficient to place such stock-material* in this subclass.

(2) Note. Specifically excluded from this subclass are wires, rods and tubes of uniform circular cross section, having a core and one or more outer layers, each outer layer, in a cross section perpendicular to the long dimension, being a complete, continuous annulus of uniform thickness.

SEE OR SEARCH THIS CLASS, SUBCLASS:

77+, and 189+, for composite nonmetallic* stock-material* having laterally noncoextensive components.

592, for composite materials having helical rods or filaments embedded therein.

608, for composite material having interengaged rods or filaments embedded therein.

609, for composite material having an apertured component embedded therein.

SEE OR SEARCH CLASS:

63, Jewelry, subclasses 26+ for articles of that class having means for holding gems.

109, Safes, Bank Protection, or a Related Device, subclasses 80+ for wall and panel composite structures.

156, Adhesive Bonding and Miscellaneous Chemical Manufacture, subclass 298 for surface bonding by embedding of a lamina within the face of an additional lamina.

615 This subclass is indented under subclass 544. Subject matter which comprises at least two different, contiguous* layers or portions, each having a matrix or continuous phase of free metal.

(1) Note. Neither a disclosure of, nor a product claim containing a lamination to a particular process for producing or uniting two or more metallic layers or portions will exclude an invention from this subclass; however, see the search notes to Classes 148 and 427, below.

(2) Note. This and the indented subclasses provide for wire and filaments, greater than 6 mils in diameter, or of unspecified diameter, made by joining two or more different metals. Metal wire coated with a different metal is also classified in this and the indented subclasses.

(3) Note. Included in this and indented subclasses are soldered, brazed or welded joints, claimed as joints, which are characterized only by the composition of the metal parts joined and/or of the filler metal. Where merely a "weld deposit" is claimed, the claimed subject matter is considered to be merely a composition for a composition class, e.g., Class 420, subclasses 122.1+.

(4) Note. The term "base-metal", as used in the subclass titles indented hereunder, means a content of a particular metal or group of metals of more than 40 percent.

(5) Note. The term "alternative", as used in the subclass titles indented hereunder, means that the base metal of a component may be either one of the metals or metal groups of the title, or may be a combination of such metals. Further, the alternativeness need not be expressed in a single claim or "Markush" group, but may be based upon different claims; thus, a patent having one claim to a lead-coated iron composite and another claim to a tin-coated iron composite is proper for classification in subclass 644 and need not be cross-referenced elsewhere on the basis of these two claims.

(6) Note. Where a "diffusion" layer or portion is claimed, made by interdiffusion during heat treatment of materials from two adjacent metal layers or portions, the diffusion layer or portion is ignored in classifying the patent.

(7) Note. Placing of original and cross-reference patents.

I. It is necessary to provide an original or cross-reference copy of a patent in this or the subclasses indented hereunder, for, at most, only each interface of the composite material; thus, a two-layer composite is provided for completely in the first-appearing subclass which provides for either layer.Where a three-layer material is claimed (e.g., two pieces of aluminum alloy soldered together with a tin-lead solder) and the composition of the central layer is provided for in the schedule ahead of the subclasses provided for the composition of either outer layer, placement of the patent original or cross-reference in the first-appearing subclass (e.g., 643) will suffice.

II. Where a composite not suitable for placement in subclasses 616+, 620 or 621+ is described in the claims only on the basis of the functional characteristics of the components, e.g., "solder", "hard metal", etc., it is placed as an original in subclass 686 and may be cross-referenced elsewhere, when desired, on the basis of the disclosed composition of its components.

III. Where the entire composite is claimed as being deflectable by a temperature change, it is classified as an original in subclasses 616+ and cross-referenced below only when the subclasses indented under subclass 616 do

not specifically provide for the interfaces claimed or otherwise of interest.

IV. Where the metal composite, in addition, has a layer or portion composed of a nonmetal composition, that is, a composition having a continuous nonmetal phase, it is placed as an original in subclasses 621+ and cross-referenced below on the basis of the metal-to-metal interface(s).

V. Where only one component of a composite is claimed in terms of its composition, or a name which is equivalent to a composition, e.g., "stainless steel", the patent is placed as an original in the first-appearing subclass which provides for that composition and may be cross-referenced elsewhere on the basis of the disclosed composition of the other components.

(8) Note. This subclass (615) is the locus for composite* stock-material* in which one of the components* has an alkali-metal base, that is, lithium, sodium, potassium, rubidium, cesium or francium, or in which only a minor ingredient of a component is identified.

(9) Note. For guidance purposes only, the Search This Class Subclass below contains a list of elements, along with an identification for each nonmetal, and/or the principal subclass locations which concern locations which concern that element. [The following elements are not included in this subclass list - Helium (He), nonmetal; Hydrogen (H), nonmetal; Krypton (Kr), nonmetal; Fluorine (F), nonmetal; Argon, nonmetal; Astatine (At) nonmetal; Bromine (Br) nonmetal; Chlorine (Cl), nonmetal; Iodine (I), nonmetal].

SEE OR SEARCH THIS CLASS, SUBCLASS:

411+, for analogous nonmetallic* stock-material*.
548, and 553, for composite* metallic* stock-material* having a portion derived from metal powder.
570, for metallic* composites* in form of powder.
590, for a metallic* composite* in the form of a workpiece of parallel nonfastened components*.
607, for a composite* metallic* foil of filament smaller than 6 mils.
615, for Cesium (Cs)
615, Francium (Fr)
615, for Lithium (Li)
615, for Potassium (K)
615, for Rubidium (Rb)
615, for Sodium (Na)
618, 637, 647, 652, 656, 669, 671, 674+, for Copper (Cu)
619, 638, 644, 648, 653, 656, 659, 667, 676+, 679+, 681+, for Iron (Fe)
620, 641, for Germanium (Ge)
627, 634, for Carbon (C) nonmetal,
627, for Boron (B) nonmetal,
627, for Nitrogen (N), nonmetal,
637, 648, 652, 656, 667, 668, 675, 678, 679, for Cobalt (Co), also see Niobium
637, 647, 652, 656, 669, 671, 672, for Gold (Au)
637, 648, 652, 656, 667, 671, 675, 678, 679, 680, for Nickel (Ni)
637, 648, 652, 656, 669, 670 for Osmium (Os)
637, 648, 652, 656, 669, 670 for Palladium (Pd)
637, 648, 652, 656, 669, 670 for Platinum (Pt)
637, 648, 652, 656, 669, 670, for Iridium (Ir)
642, for Antimony (Sb)
642, for Arsenic (As)
642, for Bismuth (Bi)
642, for Gallium (Ga)
642, for Indium (In)
643+, 645, for Lead (Pb)
649, for Barium (Ba)
649, for Beryllium (Be)
649, Calcium (Ca)
649, for Magnesium (Mg)
650+, for Aluminum (Al)
651, 656, 660, 661, for Hafnium (Hf)
651, 656, 663, 664, for Molybdenum (Mo)
651, 656, 661, 662, for Niobium (Nb) [also Columbium (Cb)]
651, 656, 661, 664, 666+, for Chromium (Cr)
655, 656, for Actinium (Ac)

655, 656, for Americium (Am)
655, 656 for Berkelium (Bk)
655, 656, for Californium (Cf)
655, 656, for Cerium (Ce)
655, 656, for Curium (Cm)
655, 656, for Dysprosium (Dy)
655, 656, for Einsteinium (Es)
655, 656, for Erbium (Er)
655, 656, for Europium (Eu)
655, 656, for Fermium (Fm)
655, 656, for Gadolinium (Gd)
655, 656, for Holmium (Ho)
655, 656 for Lanthanum (La)
655, 656, for Lawrencium (Lw)
655, 656, for Mendelium (Md)
657, for Mercury (Hg)
655, 656, for Neptunium (Np)
655, 656, for Nobelium (No)
655, 656 for Plutonium (Pu)
655, 656 for Lutetium (Lu)
655, 656, for Manganese (Mn)
655, 656, for Neodymium (Nd)
655, 656 for Polonium (Po)
655, 656 for Prseodymium (Pr)
655, 656 for Protactinium (Pa)
655, 656, for Promethium (Pm)
655, 656, for Rhenium (Re)
655, 656, for Samarium (Sm)
655, 656, for Scandium (Sc)
655, 656, for Technitium (Tc)
655, 656, for Terbium (Tb)
655, 656, for Thorium (Th)
655, 656, for Thulium (Tm)
655, 656, for Ytterbium (Yb)
655, 656, for Yttrium (Y)
656, 657, for Cadmium (Cd)
629, 632+, 639+ for Oxygen (O), nonmetal,
649, for Radium (Ra)
637, 648, 652, 656, 669, 670, for Rhodium (Rh)
637, 648, 652, 656, 669, 670, for Ruthenium (Ru)
620, 641, for Silicon (Si)
637, 647, 652, 656, 669, 671, 673 for Silver (Ag)
649, for Strontium (Sr)
639, for Sulfur (S) nonmetal,
651, 656, 661, 662, for Tantalum (Ta)
642, for Thallium (Tl)
643+, 646+, for Tin (Sn)
651, 656, 660, 661, for Titanium (Ti)
651, 656, 664, 665, for Tungsten (W)
665, 656, for Uranium (U)
658+, for Zinc (Zn)
651, 656, 660, 661, for Zirconium (Zr)
924+, for collections of patents which define composite* metallic* stock-materials* in terms of physical dimension.

SEE OR SEARCH CLASS:
52, Static Structures (e.g., Buildings), subclasses 782.1+ for a composite building panel having a disparate edging.
109, Safes, Bank Protection, or a Related Device, subclass 85 for composite metallic walls and panels.
136, Batteries: Thermoelectric and Photoelectric, subclasses 236+ for thermocouples identified by the composition of at least one member of the junction.
138, Pipes and Tubular Conduits, subclass 140 for material of that class having more than one layer in the wall make-up.
148, Metal Treatment, subclasses 400+ for single-layer metal stock-material* having a surface into which another material has been diffused, e.g., "case-hardened", and subclasses 33+ for essentially homogeneous electrically semiconductive stock having at least two contiguous layers differing in the number of unbound electrons (P-N-type materials).
164, Metal Founding, subclass 91 for processes of that class directed to formation of multilayered articles by forming a metal into a preform or casting two or more metals in contact with one another, and subclass 94 for forming a composite article by sequentially casting molten metal.
174, Electricity: Conductors and Insulators, subclass 196 for conductively contacting components or a composite conductive armor or sheath.
204, Chemistry: Electrical and Wave Energy, subclasses 290.01 through 290.15 for laminated or coated electrodes.
219, Electric Heating, subclass 85.1 for pressure bonding methods directed to brazing or soldering, subclasses 104+ for brazing or soldering by arc, and subclasses 136+ for other welding.

220, Receptacles, subclasses 62.11+ and 660+ for such devices comprising the construction of a receptacle wall.

228, Metal Fusion Bonding, subclass 56.3 for an article* to be used as a filler in joining juxtaposed or otherwise engaged metal work portions.

285, Pipe Joints or Couplings, subclass 329 for devices of that class wherein the free ends which constitute the joint interface are of different metals cooperating to produce a desired result, e.g., corrosion prevention.

313, Electric Lamp and Discharge Devices, subclass 405 for a resilient support for a cathode-ray tube, which is bimetallic.

405, Hydraulic and Earth Engineering, subclasses 276+ for metallic sheet piling.

427, Coating Processes, subclasses 58+ in which an electrical product is formed, especially subclasses 89+, 103, 118, and 123, subclasses 404+ for applying superposed diverse coating involving metal coatings and/or bases, and subclasses 436+ for applying a metal coating to a metal base by immersion.

616 This subclass is indented under subclass 615. Subject matter having the property of bending or lengthening in a circular fashion in response to an increase in temperature.

(1) Note. A patent is placed in this subclass (616) because of the ability of a composite to respond, shape-wise, to a temperature change. Responses to other phenomena, e.g., magnetostrictive properties, are not, in themselves, relevant to this subclass.

SEE OR SEARCH THIS CLASS, SUBCLASS:

686, for other composite material defined by the function of adjacent components.

913, for a collection of nonmetallic* stock-material* designed to be responsive to temperature, light, moisture, etc. Patents classified in subclass 616 should not be cross-referenced to subclass 913 on the basis of temperature-responsive characteristics.

SEE OR SEARCH CLASS:

60, Power Plants, subclass 529 for thermostatic devices which include, besides the bimetallic element, significant structure designed for temperature responsiveness, such as the mounting for an end of the strip or the shape given the strip to constitute the device.

136, Batteries: Thermoelectric and Photoelectric, subclasses 200+ for thermocouple (junction-type) stock-material* which produces an electric current in response to heat.

337, Electricity: Electrothermally or Thermally Actuated Switches, subclasses 333+ for such switches having a bimetallic element, and the notes thereto for the location of other devices having bimetallic elements, and subclass 379 for an article* which is a bimetallic element for such switch.

374, Thermal Measuring and Testing, subclass 205 for a thermometer having a bimetallic sensor.

617 This subclass is indented under subclass 616. Subject matter in which the composite has three or more layers.

(1) Note. The third layer often is a buffering layer designed to prevent separation of the two main layers during flexure.

(2) Note. Patents placed in this subclass are not cross-referenced to subclass 916.

SEE OR SEARCH THIS CLASS, SUBCLASS:

591, for stock-material* composites having discrete means, more than merely a buffering component, to allow relative motion between components.

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, subclass 269 for contact material which constitutes three or more layers.

618 This subclass is indented under subclass 616. Subject matter in which one component of the composite is copper or an alloy containing more than 40% copper.

(1) Note. Subject matter classified herein is not cross-referenced to subclasses 656, 699, 671, or 674.

SEE OR SEARCH CLASS:
200, Electricity: Circuit Makers and Breakers, subclass 268 for contact material which constitutes two layers, each one being different from the other.

619 This subclass is indented under subclass 616. Subject matter in which both components of the composite are of an alloy containing 40 percent or more of iron and 10 or more of nickel.

(1) Note. Patents classified herein are not cross-referenced to subclasses 681+.

SEE OR SEARCH THIS CLASS, SUBCLASS:
617, to complete a search for this subject matter.

620 This subclass is indented under subclass 615. Subject matter in which one of the components is described as being an electrical semiconductor, that is, a material with an electrical conductivity between that of a conductor and an insulator.

(1) Note. Claimed recitation of electrical conductor means or electrical components, even nominally, will result in the subject matter being classified elsewhere, e.g., in Classes 174, 257 or 361, appropriate subclasses.

SEE OR SEARCH THIS CLASS, SUBCLASS:
641, for a composite having a silicon- or germanium-base component which is not described as a semiconductive component.

SEE OR SEARCH CLASS:
148, Metal Treatment, subclasses 33+ for electrically semiconductive stock under the Class 148 definition which is essentially homogeneous and has at least two contiguous layers differing in the number of unbound electrons and/or differing in energy gap levels, which exhibit a junction between the layers.
174, Electricity: Conductors and Insulators, subclasses 102+ for armor or sheath devices of that class which may be semiconductive.
252, Compositions, subclass 62.3 for barrier layer compositions, and subclasses 500+ for other semiconductor compositions.
257, Active Solid-State Devices (e.g., Transistors, Solid-State Diodes), appropriate subclasses for such devices, wherein the solid state material is typically a semiconductor.
438, Semiconductor Device Manufacturing: Processes, particularly subclasses 570+ for methods of making a Schottky contact to a semiconductor and subclasses 597+ for methods of making an ohmic contact to a semiconductor.

621 This subclass is indented under subclass 615. Subject matter having a nonmetal component, that is, a spatially distinct continuum which is not a metal, an alloy, or an intermetallic compound.

(1) Note. To be classified in this subclass, the article or stock-material* must be classifiable in this class, subclasses 615+ in the absence of the nonmetal component, that is, it must have at least two different contiguous metal layers or portions.

(2) Note. Nonmetals are the elements designed as such in the definition of subclass 615, (9) Note, the compounds of these elements.Silicon is considered to be metal and intermetallic compounds are considered to be alloys.

SEE OR SEARCH THIS CLASS, SUBCLASS:

344, 385 and 444, for a laminate including a single layer of metal adjacent a nonmetal layer.

545, for composites* having a component* in which a nonmetal continuum is interengaged with a metal continuum.

551, for a composite* of the type classifiable in these subclasses (621+) where a metal component* is particulate.

560+, for composites* having metal particles dispersed in a nonmetal matrix component which is adjacent a metal component.

SEE OR SEARCH CLASS:

52, Static Structures (e.g., Buildings), subclass 759 for a bonded metal to nonmetal joint of that class.

148, Metal Treatment, subclasses 206 through 238 for processes of carburizing, nitriding, or both (e.g., carbonitriding, etc.) of solid metal, and subclasses 316-319 for resulting stock.

205, Electrolysis: Processes, Compositions Used Therein, and Methods of Preparing the Compositions, subclasses 171+ and 316+ for a single metal layer coated with a nonmetal by a process of that class.

336, Inductor Devices, subclass 234 for a laminated magnetic core.

361, Electricity: Electrical Systems and Devices, subclasses 271+ for electrostatic condensers.

427, Coating Processes, subclasses 258+ and 402+ for application of plural diverse coatings or coating a coated base.

622 This subclass is indented under subclass 621. Subject matter having two or more spatially distinct components, each of which has a nonmetal matrix.

623 This subclass is indented under subclass 622. Subject matter in which the components having nonmetal matrices are next to each other.

SEE OR SEARCH THIS CLASS, SUBCLASS:

411+, for the specific combinations of nonmetal components.

624 This subclass is indented under subclass 621. Subject matter in which the component* having a nonmetal matrix is an organic material.

(1) Note. See the main class definition of Class 260, Chemistry of Carbon Compounds, for the scope of "organic".

SEE OR SEARCH THIS CLASS, SUBCLASS:

459, 464, 467, and 468, for a composite product having an organic component next to a single metal layer.

608, for paper or other organic fibrous material interengaged or between metal layers.

SEE OR SEARCH CLASS:

174, Electricity: Conductors and Insulators, subclasses 105+ for plural insulated conductive armors or sheaths, subclasses 110+ for insulated devices of that class which may have an organic component, and subclasses 126.1+ for conductor structure.

625 This subclass is indented under subclass 624. Subject matter in which the organic material is rubber or a similarly stretchable and reboundable polymer or gum.

SEE OR SEARCH THIS CLASS, SUBCLASS:

419, 462 and 465, for a composite* in which one layer comprises a rubber-like synthetic polymer and another layer comprises a metal.

SEE OR SEARCH CLASS:

403, Joints and Connections, subclasses 225+ for flexibly connected rigid members having an elastomer interposed between radially spaced members.

626 This subclass is indented under subclass 624. Subject matter in which the organic material is a synthetic resin.

(1) Note. See Class 520, Synthetic Resins or Natural Rubbers, subclass 1 for the meaning of "synthetic resin".

SEE OR SEARCH THIS CLASS, SUBCLASS:

457+, for a composite having a single metal layer next to a synthetic resin layer.

625, for a composite* having a stretchable and reboundable synthetic resin component*.

SEE OR SEARCH CLASS:

205, Electrolysis: Processes, Compositions Used Therein, and Methods of Preparing the Compositions, subclasses 183+, 188+, 191+, and 198+ for electrolytic coating combined with another coating method involving a synthethic resin.

627 This subclass is indented under subclass 621. Subject matter in which the nonmetal component is a binary compound of boron, carbon, or nitrogen.

(1) Note. Stock-material* having a boride, carbide, or nitride surface layer is placed here unless it is specified that the treatment with the nonmetal element is insufficient to produce a continuous phase of the nonmetal.

(2) Note. See the main class definition of this class (428), section VI, C, 6, for the loci of other subject matter related to coating and coated products which may contain a boride, carbide, or nitride component*.

SEE OR SEARCH CLASS:

75, Specialized Metallurgical Processes, Compositions for Use Therein, Consolidated Metal Powder Compositions, and Loose Metal Particulate Mixtures, subclasses 236+ for a consolidated metal power composition containing a carbide, and subclass 244 for such composition containing boron or nitrogen.

148, Metal Treatment, subclasses 206 through 238 provide for processes of carburizing, nitriding, or both (e.g., carbonitriding, etc.) of solid metal, and subclasses 316-319 for the resulting stock.

628 This subclass is indented under subclass 621. Subject matter in which the nonmetal component is a compound of a metal which is adjacent to the nonmetal component.

(1) Note. This subclass includes, but is not restricted to, so-called "conversion coatings".

SEE OR SEARCH CLASS:

148, Metal Treatment, subclasses 240+ for processes of coating solid metal with a material that reacts therewith.

205, Electrolysis: Processes, Compositions Used Therein, and Methods of Preparing the Compositions, subclasses 171+, 199+, and 324+ for electrolytic methods of forming a conversion coating on solid metal, e.g., anodizing, and for the resulting products.

629 This subclass is indented under subclass 628. Subject matter in which the component is an oxide of the adjacent metal, e.g., an "anodizing coating".

630 This subclass is indented under subclass 621. Subject matter in which the nonmetal component is an amorphous material consisting of silica or a mixture of oxide or a mixed-metal oxide, e.g., sodium silicate.

(1) Note. The mere designation of a component as "glass" is sufficient for classification herein.

(2) Note. See the main class definition of this class (428), section VI, C, 6, for loci of other coating and coated products.

SEE OR SEARCH THIS CLASS, SUBCLASS:

432, for a nonmetallic* composite* in which one component* is glass or quartz and another component may be a metal.

632, for a metallic* composite* having a crystalline (ceramic) component.

SEE OR SEARCH CLASS:

52, Static Structures (e.g., Buildings), subclass 759 for other metal-to-glass joints.

174, Electricity: Conductors and Insulators, subclass 50.61 for boxes and housings with a bonded seal for a conductive member, e.g., glass-to-metal.

403, Joints and Connections, subclass 30 for joint structure wherein two members have different coefficients of expansion.

631 This subclass is indented under subclass 630. Subject matter in which the nonmetal component is so thin as to be like a coating on the metal component material.

(1) Note. In most patents of this subclass the product is made by a coating process.

632 This subclass is indented under subclass 621. Subject matter in which the nonmetal is, or contains, an oxide.

SEE OR SEARCH THIS CLASS, SUBCLASS:

469+, for a composite product wherein the layer adjacent the metal layer contains a metal salt or an oxide.

633 This subclass is indented under subclass 632. Subject matter in which the oxide is of more than one metal or consists of two or more oxides.

(1) Note. A patent claiming a nonmetal component merely as "a ceramic" is placed here. Where the ceramic is claimed in terms only of a single oxide constituent, e.g., "a high-alumina ceramic", the patent is placed in subclass 632, or 629, if appropriate.

SEE OR SEARCH THIS CLASS, SUBCLASS:

636+, for a metallic composite having a vitrified ceramic component.

634 This subclass is indented under subclass 621. Subject matter in which the nonmetal component is uncombined carbon.

SEE OR SEARCH CLASS:

75, Specialized Metallurgical Processes, Compositions for Use Therein, Consolidated Metal Powder Compositions, and Loose Metal Particulate Mixtures, subclass 243 for a consolidated metal powder composition containing elemental carbon.

635 This subclass is indented under subclass 615. Subject matter in which the composite has four or more spatially distinct components, e.g., layers, in which two types of components appear alternately in the same sequence in a visual scanning of the composite cross section; for example, a sequence of components are exemplified by A, B, A, B.

(1) Note. A "symmetrical" sequence of the type A, B, C, B, A is not a basis for placement in this subclass.

636 This subclass is indented under subclass 615. Subject matter comprising adjacent components having an identical composition.

(1) Note. The components, while having identical chemical compositions, often will have different physical properties because of a difference in their manufacturing history, e.g., one component may be a substrate, while the other is a coating.

(2) Note. Where the claims of a patent are such that adjacent components may be the same or different in their composition, e.g., due to overlapping in the claimed ranges of alloying ingredients, generic claiming, etc., the patent is placed in this subclass (636) as an original, and is cross-referenced to the appropriate subclass below. Where the components are always identical, patents classified herein are not cross-referenced below, e.g., to subclass 654.

637 This subclass is indented under subclass 636. Subject matter in which the identical adjacent components contain more than 40% of one or more metals from Group VIII or IB of the periodic table, that is, cobalt, copper, gold, iridium,

iron, nickel, osmium, palladium, platinum, rhodium, ruthenium and/or silver.

(1) Note. Where the adjacent components are always identical, e.g., are not described in terms of overlapping ranges or constituents, patents classified herein are not cross-referenced to subclass 675.

638 This subclass is indented under subclass 637. Subject matter in which the metal is iron and the components contain 0.01 to 1.7% carbon.

(1) Note. Patents classified herein are not cross-referenced to subclass 683 where the components are necessarily identical.

SEE OR SEARCH THIS CLASS, SUBCLASS:

682+, for composite metallic stock-material* having adjacent iron-base components of differing composition.

639 This subclass is indented under subclass 615. Subject matter in which a component of a composite has oxygen, sulfur, or an organic material dispersed in its metal matrix.

SEE OR SEARCH THIS CLASS, SUBCLASS:

539.5, for stock-material* comprising a metal matrix interengaged with a nonmetal matrix.

545, for composite materials having as a component a metal matrix interengaged with a nonmetal matrix.

567, for a composite having a particulate component with nonmetal dispersed therein.

SEE OR SEARCH CLASS:

75, Specialized Metallurgical Processes, Compositions for Use Therein, Consolidated Metal Powder Compositions, and Loose Metal Particulate Mixtures, subclasses 230 and 951 for consolidated metal powder compositions having a nonmetal dispersed therein.

640 This subclass is indented under subclass 639. Subject matter in which the dispersed nonmetal is the oxide of aluminum or a transition metal.

(1) Note. See the definition of subclass 655 for the scope of "transition metal".

641 This subclass is indented under subclass 615. Subject matter in which a component contains 40 percent or more of silicon, germanium, or both.

SEE OR SEARCH THIS CLASS, SUBCLASS:

620, for similar materials where the Si- or Ge-base component is described as an electrical semiconductor.

SEE OR SEARCH CLASS:

136, Batteries: Thermoelectric and Photoelectric, subclass 239 for thermoelectric devices of composition containing a Group IV element.

642 This subclass is indented under subclass 615. Subject matter in which a component comprises 40 percent or more of arsenic, antimony, bismuth, gallium, indium or thallium, or a combination of these metals.

643 This subclass is indented under subclass 615. Subject matter in which a component* having 40 percent or more of tin is adjacent a component* having 40 percent or more of lead, or in which a component* of the composite* may be either lead-base or tin-base or a combination of lead and tin which makes up 40 percent or more of the component, e.g., 30 percent lead and 30 percent tin.

(1) Note. This is an experimental "Markush"- type subclass designed to provide, for classification and search purposes, the kind of convenience and compactness offered by "Markush" claiming in patents, primarily by reducing the amount of cross-referencing which is required. So far as patent placement is concerned, a patent placed in a "Markush" subclass is not cross-referenced to subclasses which provide for species covered by the generic "Markush" subclass, although it may be desirable to cross-reference the patent to indented subclass on the basis of the combination of layers. Thus, a patent placed in this subclass (643) is not

placed also in subclasses 645 or 646, although placement in subclasses 647 and/or 648 may be desirable for subject matter not covered by subclass 644.

As concerns search purposes, a search for an invention restricted to a species has its primary search field in the subclass devoted to the species, while the "Markush" subclass is a secondary search field; a search of which is mandatory when the primary field does not provide satisfactory documentation. Conversely, an invention involving a "Markush" group comprising two or more members, all of which are provided for in a "Markush" subclass, has its primary search field in that subclass and subordinate search fields in the subclasses providing for the species.

(2) Note. The alternativeness of the species must be according to the claims, but not be stated in a single claim; that is, a patent having one claim to a composite with a component having a base of one species, and a substantially identical claim to a composite with a component having a base of a second species, both species being provided for in the same "Markush" subclass, is classified in the "Markush" subclass.

(3) Note. The designation of a component* as a "type-metal" or "tin-led solder" is sufficient for classification in this subclass (643), however, a designation merely as "solder" is not. Subclasses 686 and 927-933 have been provided as collection places for components designated in such merely functional terminology.

SEE OR SEARCH CLASS:

205, Electrolysis: Processes, Compositions Used Therein, and Methods of Preparing the Compositions, subclasses 252+ for coating from an aqueous bath with a lead- or tin-base alloy.

220, Receptacles, subclasses 62.11+ for a "tin" can lined with a coating.

427, Coating Processes, subclasses 312 and 313 for treating a lead or tin coating with a flux, and subclass 423 for immersion-type coating with tin, lead or zinc.

644 This subclass is indented under subclass 643. Subject matter in which a lead- or tin-base component is adjacent a component having 40 percent or more of copper or iron, or a combination of the two.

(1) Note. Patents in this subclass are not cross-referenced to subclasses 674 and 681+ on the basis of the Pb-Sn/Cu-Fe interface.

645 This subclass is indented under subclass 615. Subject matter in which a component has 40 percent or more of lead.

SEE OR SEARCH THIS CLASS, SUBCLASS:

643, to complete a search for lead-base components.

646 This subclass is indented under subclass 615. Subject matter in which a component has 40 percent or more of tin.

(1) Note. Nb3Sn is a niobium (columbium)-base alloy and a composite with such a component is provided for in subclass 662.

SEE OR SEARCH THIS CLASS, SUBCLASS:

643, to complete a search for tin-base components.

SEE OR SEARCH CLASS:

220, Receptacles, 62.11+ for a receptacle having a wall including plural distinct layers.

647 This subclass is indented under subclass 646. Subject matter in which the tin-base component is adjacent a component having 40 percent or more of copper, gold and/or silver.

(1) Note. Patents in this subclass are not cross-referenced to subclasses 671, 672, 673, or 674+ on the basis of the Sn/Group IB-metal interface.

SEE OR SEARCH THIS CLASS, SUBCLASS:
643, and/or 644, to complete this search.

648 This subclass is indented under subclass 646. Subject matter in which the tin-base component is adjacent a component containing 40 percent of one, or a combination of, cobalt, iron, nickel, or a platinum metal.

(1) Note. Patents in this subclass are not cross-referenced to subclasses 670, 678, 680, or 681+ on the basis of the Sn/Group VIII-metal interface.

SEE OR SEARCH THIS CLASS, SUBCLASS:
643, and/or 644, to complete a search for this subject matter.

SEE OR SEARCH CLASS:
220, Receptacles, various subclasses for miscellaneous receptacles of that class.

649 This subclass is indented under subclass 615. Subject matter in which a component has 40 percent or more of barium, beryllium, calcium, magnesium, radium or strontium, or a combination of two or more of these metals.

(1) Note. The mere designation of a base component as an "alkaline earth metal" is sufficient for placement in this subclass.

(2) Note. The term "light metal" is interpreted to mean a magnesium-base alloy, an aluminum-base alloy, or an alloy comprising 40 percent or more of these two metals. In not further explained in the claims, a patent claiming a "light-metal" component is placed here and in the proper subclass included in 650+.

SEE OR SEARCH CLASS:
376, Induced Nuclear Reactions: Processes, Systems, and Elements, subclass 455 for nuclear fuel components in layered form.

650 This subclass is indented under subclass 615. Subject matter in which a component contains 40 percent or more of aluminum.

SEE OR SEARCH CLASS:
148, Metal Treatment, subclass 275 for coating an aluminum or aluminum alloy with a liquid reactive coating composition.
205, Electrolysis: Processes, Compositions Used Therein, and Methods of Preparing the Compositions, subclasses 139, 153, 172+, 190, 201+, 213+, 233, 237, and 323+ for electrolytic coating processes in which either the substrate or an electrolytically coated layer is predominantly aluminum.
219, Electric Heating, subclass 118 for methods directed to the electric welding of a dissimilar metal to aluminum.
420, Alloys or Metallic Compositions, subclasses 528+ for an aluminum base alloy.
427, Coating Processes, subclass 320 for treatment of a metal substrate preparatory to coating aluminum.

651 This subclass is indented under subclass 650. Subject matter in which the aluminum-base component is adjacent a component containing 40 percent or more of one or more of the metals in Groups IVB, VB, or VIB.

(1) Note. For a listing of metals contained in the above-listed groups, see the definitions of subclasses 660, 662 and 663.

(2) Note. Patents classified herein are not cross-referenced to subclasses 660+ on the basis of the Al/refractory-metal interface.

SEE OR SEARCH CLASS:
148, Metal Treatment, subclass 133 for a heat treatment of that class involving a refractory-metal-base component.

652 This subclass is indented under subclass 650. Subject matter in which the aluminum-base component is adjacent a component having 40 percent or more of a Group VIII or IB metal.

(1) Note. Patents classified herein are not cross-referenced to subclasses 688+ on the basis of the Al/Group VIII-IB interface.

653 This subclass is indented under subclass 652. Subject matter in which the Group VIII metal is iron.

(1) Note. Patents classified herein are not cross-referenced to subclasses 681+ on the basis of the Al/Fe interface.

SEE OR SEARCH CLASS:
420, Alloys or Metallic Compositions, subclasses 77+ and 103 for iron-aluminum alloys.

654 This subclass is indented under subclass 650. Subject matter in which the aluminum-base component is adjacent another component having 40 percent or more of aluminum.

SEE OR SEARCH THIS CLASS, SUBCLASS:
636, for composites having aluminum-base components of identical composition adjacent each other.

655 This subclass is indented under subclass 615. Subject matter having a component which contains 40 percent or more of a transition metal or a combination of transition metals.

(1) Note. The transition elements, as defined in the "Condensed Chemical Dictionary", 7th Edition, Reinhold Publishing Company, 1966, page 958, are:

"Elements in which an inner electron shell, rather than an outer shell, is partially filled. In the periodic table they include elements 21 through 30 (scandium through zinc), 39 through 48 (yttrium through cadmium), 57 through 80 (lanthanum through mercury), and 89 through 103 (actinium through lawrencium). They are all metals and most possess colored ions, variable valency, have a tendency to form complexes, and have large magnetic moments."

Thus, the transition elements include the metals of the periodic table groups listed in the subclasses indented hereunder, as well as those covered in (2) Note below.

(2) Note. This subclass (655) is the locus for composite materials having a component which is 40 percent or more of the Group IIIB metals (Sc, Y, the lanthanides and the actinides) and/or the Group VIIB metals (Mn, Tc, and Re).

(3) Note. "Franklinite" is considered to be a Mn-base alloy.

SEE OR SEARCH CLASS:
75, Specialized Metallurgical Processes, Compositions for Use Therein, Consolidated Metal Powder Compositions, and Loose Metal Particulate Mixtures, subclasses 245+ for consolidated metal powder compositions in which the base metal is one or more transition metals.
376, Induced Nuclear Reactions: Processes, Systems, and Elements, subclass 455 for a structured, layered, canned or jacketed nuclear fuel component.

656 This subclass is indented under subclass 655. Subject matter in which a component of a composite comprises 40 percent or more of a metal which is permitted by the claims to be selected from more than one of the following diverse categories: Category A: Group IIB metals Category B: Group IIIB metals Category C: Refractory (Groups IVB, VB, VIB metals) Category D: Group VIIB metals Category E: Group VIII or IB metals.

(1) Note. Where the selection of the base transition metal is restricted to one of the above categories, the patent is not placed here.

(2) Note. Where the composite has a component made of at least three metals, none of which is present as more than 40 percent by weight of the component, and no combination of metals provided for in a single category above is present as more than 40 percent by weight, but in

which the total of transition metals is 40 percent or more, by weight, it is classified in this subclass (656).

(3) Note. This subclass follows the classification and search rules for "Markush"-type subclasses set forth in the definition of subclass 643, (1) Note and (2) Note.

(4) Note. When a patent is proper for classification in this subclass, such classification provides fully for all interfaces between transition-metal-base components; however, it may be desirable, when a particular metal, alloy, or combination of components, specifically provided for in a subclass below, is emphasized, to place a copy of the patent in such subclass. Exemplary of such emphasis is the restriction of a nonalternative component to a specific alloy or grain structure, a claim to only one preferred species of the alternative component, etc.

SEE OR SEARCH CLASS:
427, Coating Processes, subclass 305 for treatment of a metal base preparatory to coating with nickel, copper, cobalt or chromium.

657 This subclass is indented under subclass 655. Subject matter in which a component of the composite comprises 40 percent or more of the Group IIB metal(s).

(1) Note. This subclass (657) is the locus for composites having a cadmium-base or mercury-base component.

SEE OR SEARCH THIS CLASS, SUBCLASS:
656, to complete a search for Cd- and Hg-base components.

658 This subclass is indented under subclass 657. Subject matter in which the composite has a component which is 40 percent or more of zinc.

(1) Note. Although brass is sometimes defined as containing up to 40 percent zinc, a component described merely as "brass", without a recitation that it contains 40 percent or more zinc, is not suitable for classification is subclasses 658+.

SEE OR SEARCH THIS CLASS, SUBCLASS:
656, to complete a search for Zn-base components.

SEE OR SEARCH CLASS:
205, Electrolysis: Processes, Compositions Used Therein, and Methods of Preparing the Compositions, subclasses 305+ for coating electrically with zinc from an aqueous bath.
420, Alloys or Metallic Compositions, subclasses 513+ for a zinc base alloy.
427, Coating Processes, subclass 406 for methods of applying superposed diverse coatings or coating a coated substrate involving a zinc coating on a metal substrate, and subclass 433 for a method of applying a molten zinc coating by immersion.

659 This subclass is indented under subclass 658. Subject matter in which the zinc-base component is adjacent to a component having 40 percent or more of iron.

(1) Note. The mere designation of a composite as "galvanized" is sufficient for placement in this subclass.

(2) Note. Patents classified herein are not cross-referenced to subclasses 681 or 933 on the basis of the Zn/Fe interface.

SEE OR SEARCH THIS CLASS, SUBCLASS:
933, for composites other than zinc-iron having a sacrificial component.

SEE OR SEARCH CLASS:
427, Coating Processes, subclass 433 for galvanizing a base by immersion into a molten metal bath.

660 This subclass is indented under subclass 655. Subject matter in which the composite has a component which is 40 percent or more of one or more metals from Groups IVB, VB or VIB of the periodic table.

(1) Note. This subclass (660) is the locus for components having a base of one or more Group IVB metals (titanium, hafnium or zirconium).

SEE OR SEARCH THIS CLASS, SUBCLASS:
656, and 661, to complete a search for Ti-, Zr-, and Hf-base components.

SEE OR SEARCH CLASS:
148, Metal Treatment, subclass 133 for heat treatment methods of that class directed to refractory metals.

661 This subclass is indented under subclass 660. Subject matter in which a component having 40 percent or more of Group IVB metal(s), or Group VB metal(s) or Group VIB metal(s) is adjacent a component having 40 percent or more metal from another of these groups, or in which the claims permit a component base to be selected from metals belonging to more than one of these groups.

(1) Note. Patents classified in this subclass are not cross-referenced to subclasses 660, 662 or 663.

(2) Note. The mere designation of a component base as a "refractory metal" is sufficient for placement in this subclass (661).

(3) Note. This subclass follows the classification and search rules for "Markush"-type subclasses set out in the definition of subclass 643, (1) Note and (2) Note.

SEE OR SEARCH THIS CLASS, SUBCLASS:
656, to complete a search for refractory metal-base components.

SEE OR SEARCH CLASS:
148, Metal Treatment, subclass 133 for a heat-treatment process of that class directed to a refractory solid metal or solid alloy.

662 This subclass is indented under subclass 660. Subject matter in which a composite has a component comprising 40 percent or more of one or more of vanadium, niobium (columbium), or tantalum.

(1) Note. Niobium stannite is a niobium-base alloy.

SEE OR SEARCH THIS CLASS, SUBCLASS:
656, and 661, to complete a search for Group VB metal-base components.

663 This subclass is indented under subclass 660. Subject matter in which the composite has a component containing 40 or more of a Group VIB metal.

(1) Note. This is the locus for patents having a molybdenum-base component.

SEE OR SEARCH THIS CLASS, SUBCLASS:
565, 661 and 664, to complete a search for Mo-based components.

SEE OR SEARCH CLASS:
75, Specialized Metallurgical Processes, Compositions for Use Therein, Consolidated Metal Powder Compositions, and Loose Metal Particulate Mixtures, subclass 245 for a consolidated metal powder composition which may be Mo-based.

664 This subclass is indented under subclass 663. Subject matter in which a component having 40 percent or more of chromium, molybdenum or tungsten is adjacent a component having 40 percent or more of another of these metals, or in which the claims permit a component base to be selected from two or more of these metals, or a combination of any two or three of them.

(1) Note. Patents classified in this subclass are not cross-referenced to subclasses 663, 665 or 666.

(2) Note. This subclass follows the classification and search rules for "Markush"-type subclasses set out in the definition of subclass 643. (1) Note and (2) Note.

SEE OR SEARCH THIS CLASS, SUBCLASS:

656, and 661, to complete a search for Group VIB metal-base components.

SEE OR SEARCH CLASS:

420, Alloys or Metallic Compositions, subclass 428 for a chromium base alloy, subclasses 430+ for a tungsten base alloy and subclass 429 for a molybdenum base alloy.

665 This subclass is indented under subclass 663. Subject matter in which the Group VIB metal is tungsten (wolfram).

SEE OR SEARCH THIS CLASS, SUBCLASS:

656, 661 and 664, to complete a search for W-base components.

SEE OR SEARCH CLASS:

75, Specialized Metallurgical Processes, Compositions for Use Therein, Consolidated Metal Powder Compositions, and Loose Metal Particulate Mixtures, subclass 248 for a consolidated metal powder composition in which the base metal is tungsten.

666 This subclass is indented under subclass 663. Subject matter in which the Group VIB metal is chromium.

SEE OR SEARCH THIS CLASS, SUBCLASS:

613, for composite materials having a "microcracked" chromium component between other components.

656, 661 and 664, to complete a search for Cr-based components.

SEE OR SEARCH CLASS:

148, Metal Treatment, subclasses 264+ for processes of reactively coating a metal substrate wherein a chromium containing liquid external agent combines with a component of the metal substrate to form a coating thereon containing a component of the metal substrate.

205, Electrolysis: Processes, Compositions Used Therein, and Methods of Preparing the Compositions, subclasses 178+ for methods of electrolytically coating multiple layers, at least one of which is chromium, from an aqueous bath, and subclasses 283+ for coating a single Cr layer from such a bath.

667 This subclass is indented under subclass 666. Subject matter in which the chromium-base component is adjacent a component having 40 percent or more of cobalt, iron or nickel, or a combination of two or more of these metals.

(1) Note. Patents classified in this subclass are not cross-referenced to subclasses 668, 678, 680, or 681+ on the basis of the Cr/Co-Fe-Ni interface.

668 This subclass is indented under subclass 655. Subject matter in which the transition metal is from Group VIII or IB of the periodic table.

(1) Note. For a list of metals included in this grouping, see the definition of subclass 637.

(2) Note. This subclass is the locus for patents having a cobalt-base component which are not properly placeable in subclasses 675, 678 and 679.

SEE OR SEARCH THIS CLASS, SUBCLASS:

657, 678 and 679, to complete a search for cobalt-base components.

669 This subclass is indented under subclass 668. Subject matter in which a component of a composite comprises 40 percent or more of a metal which may be either a Group IB metal or a platinum-group metal.

(1) Note. See the definition of subclass 670 for the scope of "platinum-group metal".

(2) Note. Where the selection of the base metal is restricted to a metal within a Group IB or within the platinum group, the patent is not placed here.

(3) Note. Where a composite has a component made of at least three metals, none of which is present as 40 percent or more, but in which a combination which necessarily includes a Group IB metal and a platinum group metal does total 40 percent or more, the patent is classified here.

(4) Note. Patents classified here are not cross-referenced to subclasses 670+, 672, 673, or 674.

(5) Note. The designation of the base metal as merely a "precious metal" or a "noble metal" in any claim is sufficient for classification here, despite (2) Note and (3) Note.

(6) Note. The classification and search rules for this subclass are the same as the "Markush"-type subclass rules set out in the definition of subclass 643, (1) Note and (2) Note.

SEE OR SEARCH THIS CLASS, SUBCLASS:

656, to complete a search for components having a base of Group IB or platinum metals.

SEE OR SEARCH CLASS:

63, Jewelry, appropriate subclasses for articles, generally composed of precious metals, intended to be worn upon the person as ornaments.

427, Coating Processes, subclass 125 for a process of coating a base with silver, gold, platinum, or palladium to produce an electrical product.

670 This subclass is indented under subclass 668. Subject matter having a component comprising 40 percent or more of one or more metals from Group VIII, periods 5 or 6 of the periodic table, that is, platinum, iridium, osmium, palladium, rhodium, and/or ruthenium.

SEE OR SEARCH THIS CLASS, SUBCLASS:

656, and 669, to complete a search for platinum metal-base components.

SEE OR SEARCH CLASS:

205, Electrolysis: Processes, Compositions Used Therein, and Methods of Preparing the Compositions, subclass 264 for a process directed to electrolytically coating a substrate with platinum from an aqueous bath.

420, Alloys or Metallic Compositions, subclasses 466+ for a platinum base alloy.

671 This subclass is indented under subclass 668. Subject matter in which a component may contain 40 percent or more of copper, or, alternatively to the copper, 40 or more of gold, nickel, or silver.

(1) Note. Copper must be one of the alternative metals for placement in this subclass.

(2) Note. Where the component contains some, but less that 40 percent copper, less than 40 percent total gold and silver, and less than 40 percent nickel, but where the total of these four metals is 40 percent or more, the patent is classified here.

(3) Note. Patents classified here are not cross-referenced to subclasses 672, 673, 674, or 680.

(4) Note. The classification and search rules for this subclass are the same as the "markush"-type subclass rules set out in the definition of subclass 643, (1) Note and (2) Note.

SEE OR SEARCH THIS CLASS, SUBCLASS:

656, to complete a search for a component having a base of copper, gold, nickel, or silver.

SEE OR SEARCH CLASS:

420, Alloys or Metallic Compositions, subclasses 507+ for a gold base alloy.

672 This subclass is indented under subclass 668. Subject matter in which a component contains 40 percent or more of gold.

SEE OR SEARCH THIS CLASS, SUBCLASS:

656, 669 and 671, to complete a search for gold-base components.

SEE OR SEARCH CLASS:

205, Electrolysis: Processes, Compositions Used Therein, and Methods of Preparing the Compositions, subclasses 247+ for methods of electrolytically coating a substrate with a gold-base alloy from an aqueous bath, and subclasses 266+ for coating with gold, per se, from such a bath.

420, Alloys or Metallic Compositions, subclasses 507+ for a gold base alloy.

673 This subclass is indented under subclass 668. Subject matter in which a component contains 40 percent or more of silver.

SEE OR SEARCH THIS CLASS, SUBCLASS:

656, 669 and 671, to complete a search for Ag-base components.

SEE OR SEARCH CLASS:

205, Electrolysis: Processes, Compositions Used Therein, and Methods of Preparing the Compositions, subclass 71 for processes of making mirrors and reflectors by electro-forming, and subclass 116 for the production of mirrors and reflectors by electrodeposition of metallic silver upon a substrate of specific form or configuration.

420, Alloys or Metallic Compositions, subclasses 501+ for a silver base alloy.

674 This subclass is indented under subclass 668. Subject matter in which a component contains 40 percent or more of copper.

SEE OR SEARCH THIS CLASS, SUBCLASS:

618, 656, 669, and 671, to complete a search for copper-base components.

SEE OR SEARCH CLASS:

148, Metal Treatment, appropriate subclasses for processes of treating solid or semi-solid metal to modify or maintain the internal physical structure (i.e., microstructure) or chemical properties of metal. If metal casting, fusion bonding, machining, or working is involved, there is a requirement of significant heat treatment as described in section III, A, of the Class 148 definition. Class 148, subclasses 240+, for processes of reactively coating a metal substrate wherein an external agent combines with a component of the metal substrate to form a coating thereon containing a component of the metal substrate.

205, Electrolysis: Processes, Compositions Used Therein, and Methods of Preparing the Compositions, subclasses 239+ for coating a substrate with an alloy of copper from an aqueous bath, and subclasses 291+ for such a coating process with copper, per se.

420, Alloys or Metallic Compositions, subclasses 469+ for a copper base alloy.

675 This subclass is indented under subclass 674. Subject matter in which the copper-base component is adjacent a component which contains 40 percent or more of cobalt, copper, or nickel.

(1) Note. Where the adjacent component contains less than 40 percent cobalt or copper, but the combination of these two metals is 40 percent or more, the patent is classified in this subclass (675); where this same situation exists with regard to the combination of copper with nickel, see subclass 671.

(2) Note. Patents classified herein are not cross-referenced to subclasses 668, 678, or 680 on the basis of the Cu/Co-Ni interface.

676 This subclass is indented under subclass 674. Subject matter in which the copper-base component is adjacent a component containing 40 percent or more of iron.

(1) Note. Patents classified herein are not cross-referenced to subclasses 678 or 681 on the basis of the Cu-Fe interface.

677 This subclass is indented under subclass 676. Subject matter in which the iron-base component contains 0.01-1.7 percent carbon.

(1) Note. The mere designation of the iron-base component as "steel" is sufficient for classification herein.

678 This subclass is indented under subclass 668. Subject matter in which the claims permit a component base to be selected from more than one of iron, nickel or cobalt, or in which neither of these three metals is present as 40 percent or more of the component, but a combination of any two or the three of them is.

(1) Note. Patents classified here are not cross-referenced to subclasses 668, 680, or 681.

(2) Note. A component base designated merely as "an iron-group metal" is classified herein.

(3) Note. The rules for classification and search of this subclass are the same as those set for "Markush"-type subclasses in the definition of subclass 643, (1) Note and (2) Note.

SEE OR SEARCH CLASS:

205, Electrolysis: Processes, Compositions Used Therein, and Methods of Preparing the Compositions, subclasses 255+ for processes of electrolytically coating a substrate with a Group VIII metal-base alloy from an aqueous bath, and subclasses 269, 270 and 271+ for the same type process directed to a single metal selected from the iron group.

420, Alloys or Metallic Compositions, subclasses 8+ for an iron base alloy, subclasses 435+ for a cobalt base alloy, subclasses 580+ for alloys in which no single metal exceeds 50 percent of the composition.

679 This subclass is indented under subclass 668. Subject matter in which a component having 40 percent or more of cobalt, iron, or nickel is adjacent a component having 40 percent or more of iron.

(1) Note. Patents classified herein are not cross-referenced to subclasses 668, 681m or 684+ on the basis of the Co-Ni/Fe interface.

680 This subclass is indented under subclass 668. Subject matter in which a component of the composite comprises 40 percent or more of nickel.

SEE OR SEARCH THIS CLASS, SUBCLASS:

656, 671, 678, and 679, to complete a search for Ni-base components.

SEE OR SEARCH CLASS:

148, Metal Treatment, subclass 675 for processes of treating solid or semi-solid metal to modify or maintain the internal physical structure (i.e., microstructure) or chemical properties of nickel. If metal casting, fusion bonding, machining, or working is involved, there is a requirement for significant heat treatment as described in section III, A, of the Class 148 definition.

205, Electrolysis: Processes, Compositions Used Therein, and Methods of Preparing the Compositions, subclasses 271+ for electrolytically coating a substrate with nickel from an aqueous bath.

427, Coating Processes, subclass 438 for electroless deposition of a nickel coating on a metal base.

681 This subclass is indented under subclass 668. Subject matter in which a component has 40 percent or more of iron.

(1) Note. A component designated merely as a "ferrous base metal" is classified in this subclass (681).

(2) Note. To complete a search for a Fe-base component, subclasses 656 and 678

must be searched, as well as the appropriate subclasses selected from subclasses 619, 644, 648, 653, 659, 667, 676+, and 679+.

(3) Note. The patents classified in this subclass (681) and subclasses 684 and 685 as originals are those claiming composite materials, wherein a component is defined as a Fe-base component and adjacent components are metals of unspecified composition.

SEE OR SEARCH CLASS:
148, Metal Treatment, subclasses 206 through 238 for processes of carburizing, nitriding, or both (i.e., carbonitriding, etc.) of solid metal, and subclasses 316-319 for the resulting stock.
420, Alloys or Metallic Compositions, subclasses 8+ for iron base alloys.

682 This subclass is indented under subclass 679. Subject matter in which both adjacent components are iron-base.

SEE OR SEARCH THIS CLASS, SUBCLASS:
619, and 638, to complete a search for adjacent iron-base components.

683 This subclass is indented under subclass 682. Subject matter in which both components contain 0.01 to 1.7 percent carbon.

(1) Note. The mere designation of the components as "steel" is sufficient for classification herein.

SEE OR SEARCH THIS CLASS, SUBCLASS:
619, 638 and 682, to complete a search for this subject matter.

684 This subclass is indented under subclass 681. Subject matter in which the iron-base component contains 0.01 to 1.7 percent carbon.

(1) Note. The mere designation of a component as "steel" is sufficient for classification in this subclass.

SEE OR SEARCH THIS CLASS, SUBCLASS:
619, to complete a search for this subject matter.

SEE OR SEARCH CLASS:
29, Metal Working, subclasses 4.51+ for shredding metal or metal wool article making.
76, Metal Tools and Implements, Making, subclass 84 for butcher's steel.
148, Metal Treatment, subclasses 543 through 545 and 612-618 for processes of treating solid iron based alloys containing greater than 1.7 per cent carbon to modify or maintain the internal physical structure (i.e., microstructure) or chemical properties of metal. If metal casting, fusion bonding, machining, or working is involved, there is a requirement of significant heat treatment as described in the Class 148 definition.
420, Alloys or Metallic Composition, subclasses 8+ for iron base alloys which may contain carbon, e.g., steel.

685 This subclass is indented under subclass 684. Subject matter in which the iron-base component also contains more than 10 percent of other material.

(1) Note. The mere designation of a component as "stainless steel" or "high alloy steel" is sufficient for classification herein.

SEE OR SEARCH THIS CLASS, SUBCLASS:
619, to complete a search for this subject matter.

SEE OR SEARCH CLASS:
75, Specialized Metallurgical Processes, Compositions for Use Therein, Consolidated Metal Powder Compositions, and Loose Metal Particulate Mixtures, subclasses 433+ for producing Iron(Fe) or treating molten metal that contains over 50 per cent by weight Iron.
148, Metal Treatment, subclasses 542, 592, 597, and 605-611 for processes of

treating solid iron based alloys containing greater than 9 percent chromium to modify or maintain the internal physical structure (i.e., microstructure) or chemical properties of metal. If metal casting, fusion bonding, machining, or working is involved, there is a requirement of significant heat treatment as described in section III, A, of the Class 148 definition.

686 This subclass is indented under subclass 615. Subject matter in which adjacent components of a composite are claimed, not in terms of their composition, but in terms of the properties of the components, their past histories, etc., e.g., "a solid layer", etc.

687 This subclass is indented under subclass 544. Subject matter wherein an exposed surface of the material has a particular claimed physical configuration or structure.

SEE OR SEARCH THIS CLASS, SUBCLASS:

409, and 543, for a nonmetallic* sheet or web having a particular claimed surface property or characteristic.

564, for stock-material* having a nonparticulate metal component and a particulate component which contains nonmetal particles, e.g., abrasive particles.

927, for a collection of patents concerning metallic* stock-material* having a surface which is decorative or informative.

SEE OR SEARCH CLASS:

29, Metal Working, subclasses 90.01+ for burnishing processes.

51, Abrasive Tool Making Process, Material, or Composition, for such invention.

75, Specialized Metallurgical Processes, Compositions for Use Therein, Consolidated Metal Powder Compositions, and Loose Metal Particulate Mixtures, subclass 231 for consolidated metal powder compositions containing a functionally defined component, e.g., an abrasive.

106, Compositions: Coating or Plastic, subclass 32.5 for a composition of that class having an erasable surface, and subclass 36 for a composition having a friction or tractive surface.

156, Adhesive Bonding and Miscellaneous Chemical Manufacture, subclass 18 for etching of a metal base.

688 Of inorganic material:

This subclass is indented under subclass 411.1. Subject matter in which at least one layer is comprised of inorganic material(s).

(1) Note. Organo-metallic compounds are not considered inorganic compounds and are not a basis for classification in this subclass.

SEE OR SEARCH THIS CLASS, SUBCLASS:

432+, for a laminate having a quartz or glass layer.

466+, for a silicon-containing layer other than glass or quartz.

469+, for a laminate of a free metal or alloy next to a metal salt or oxide.

SEE OR SEARCH CLASS:

423, Chemistry of Inorganic Compounds, appropriate subclasses for an inorganic compound, per se.

689 Metal-compound-containing layer:

This subclass is indented under subclass 688. Subject matter in which at least one layer comprises a compound of a metal.

(1) Note. The following elements are defined as nonmetals in Class 423: the inert gases, boron, the halogens, hydrogen, nitrogen, carbon, oxygen, phosphorus, silicon, sulfur, selenium, and tellurium; all other elements are considered to be metals.

690 Fluorescent, phosphorescent, or luminescent layer:

Subject matter under subject 689 in which a layer or component thereof exhibits natural or artificially induced fluorescence, phosphorescence or, luminescence metallic.

691 Halogen-containing:
This subclass is indented under subclass 689. Subject matter in which the product contains fluorine, chlorine, bromine, or iodine in free or combined from.

692.1 Defined magnetic layer:
This subclass is indented under subclass 689. Subject matter in which a layer or component thereof has disclosed properties which include magnetic susceptibility.

SEE OR SEARCH THIS CLASS, SUBCLASS:
800 through 848.9 , for magnetic recording component or stock, with specific chemical composition or physical chemistry.
900, for an article having a magnetic feature.

693.1 Next to second metal compound-containing layer:
This subclass is indented under subclass 692.1. Subject matter wherein the magnetic component is in a metal compound-containing layer next to another metal compound-containing layer.

696 Halogen-containing:
This subclass is indented under subclass 689. Subject matter containing halogen in any form, e.g., chloride, oxyfluoride, etc.

697 Layer contain compound(s) of plural metals:
This subclass is indented under subclass 689. Subject matter om which a single metal-compound-containing layer comprises two or more different metal compounds or two or more metals within a single compound.

698 Carbide-, nitride-, or sulfide-containing layer:
This subclass is indented under subclass 689. Subject matter in which a layer contains a carbide, nitride, or sulfide compound.

699 Next to second metal-compound-containing layer:
This subclass is indented under subclass 689. Subject matter in which two different metal-compound-containing layers are adjacent to each other.

700 Single crystal:
This subclass is indented under subclass 699. Subject matter in which at least one metal-compound-containing layer is claimed as comprising a single crystal.

701 O-containing metal compound:
This subclass is indented under subclass 699. Subject matter in which at least one layer contains a metal compound having oxygen in any form, e.g., oxide, sulfate, carbonate, etc.

SEE OR SEARCH THIS CLASS, SUBCLASS:
702, for an oxygen-containing metal compound layer not next to a second metal-compound-containing layer.

702 O-containing:
This subclass is indented under subclass 689. Subject matter containing oxygen in any form.

703 Water-settable material (e.g., gypsum, etc.):
This subclass is indented under subclass 702. Subject matter in which the oxygen-containing layer is a water-setting material such as gypsum, etc.

SEE OR SEARCH CLASS:
106, Compositions: Coating or Plastic, subclasses 638+ for a water-settable composition, per se.

704 This subclass is indented under subclass 411.1. Of B, N, P, S, or metal-containing material: Subject matter wherein the composite contains boron, phosphorus, or sulfur in free or combined organic form, an organic nitrogen compound or an organic metal compound.

SEE OR SEARCH THIS CLASS, SUBCLASS:
304.4+, for a composites material containing elemental nitrogen or another gas.
457+, and 615+, for composites having a layer of free metal.

800 MAGNETIC RECORDING COMPONENT OR STOCK:

This subclass is indented under the class definition. Stock material comprising a laminate of one or more layers deposited on a substrate, which laminate has a disclosed utility in a dynamic magnetic recording, magnetic reproducing, or magnetic storage apparatus or in a component thereof that consists of a layer of magnetizable material deposited on a substrate intended for information storage.

(1) Note. This subclass does not provide for magnetic recording media having an information-bearing track.

(2) Note. Subclasses 544-691 have not been exhaustively screened for patents which meet the definition of subclasses 800-848.9; a search of these subclasses, in particular subclass 611, may thus be appropriate to ensure a complete search.

SEE OR SEARCH THIS CLASS, SUBCLASS:

846 through 848.9 , for magnetic recording media structures that includes a specified substrate structure.

SEE OR SEARCH CLASS:

360, Dynamic Magnetic Information Storage or Retrieval, appropriate subclasses for storage elements that include discrete magnetic areas, inserts, spots, etc.

365, Static Information Storage and Retrieval, appropriate subclasses for static memory.

369, Dynamic Information Storage or Retrieval, appropriate subclasses for processes and apparatus for the storage or retrieval of arbitrarily variable information which is retained in a storage medium by variation of a physical characteristic, where the information is stored or retrieved by causing or sensing a variation of physical characteristic of the storage medium by a transducer having relative motion along a continuous path; and subclasses 272.1 through 291.1 for information-bearing storage medium with structure having an information-bearing track.

810 Magnetic head:

This subclass is indented under subclass 800. Subject matter in which the laminate of one or more layers has a disclosed utility as a component in a magnetic head or transducer (i.e., layer or laminate intended to sense stored magnetic information or to magnetically record information on a media) and which has a specified chemical composition, microstructure, or a property resulting from or influenced by microstructure of a layer or layers.

(1) Note. The term " *microstructure*" is intended to mean atomic, magnetic, crystalline, molecular, or dimensional characteristics of less than 100 microns.

(2) Note. A magnetic head or transducer is a device especially adapted to generate an electrical signal in response to a recorded magnetic bit on a media (e.g., a tape or disc) in relative motion to the device or to record a bit of information by magnetization in response to an electrical signal.

SEE OR SEARCH CLASS:

29, Metal Working, subclass 603.1 for a device which either (1) exhibits magnetic attraction when electrical current is applied, or (2) changes the magnitude or phase of an alternating current by inductive coupling, or (3) impedes a change of current flow by induced magnetism.

420, Alloys or Metallic Compositions, appropriate subclasses for alloy stock or strands which are claimed broadly as "magnetic", or "magnetized" or "permanent magnet" or are defined only in terms of their composition but are inherently magnetic, and for metallic stock or strands composed of a single metal.

811 Magnetoresistive:

This subclass is indented under subclass 810. Subject matter in which the laminate has material whose resistance varies in accordance with a magnetic field.

SEE OR SEARCH CLASS:

324, Electricity: Measuring and Testing, subclass 252 for magneto-resistive sensing means.

338, Electrical Resistors, subclass 32 for an electrical resistor which is responsive to a magnetic field.

365, Static Information Storage and Retrieval, subclass 8 for magnetic bubbles which use magnetoresistive devices, and subclass 158 for static storage systems which use magnetoresistive-type storage elements.

369, Dynamic Information Storage or Retrieval, subclasses 113 through 115 for magnetoresistive heads with or without specified chemical composition, microstructure, or property.

811.1 Having tunnel junction effect:

This subclass is indented under subclass 811. Subject matter in which the laminate has at least one tunnel junction effect.

(1) Note. Ferromagnetic magneto-resistive tunnel junction effect occurs when a current is applied in direction of the laminate between ferromagnetic layers sandwiching a nonmetal tunnel barrier layer; a tunnel current flowing in the tunnel barrier layer then changes, depending on the relative angle of magnetization between ferromagnetic layers.

SEE OR SEARCH CLASS:

360, Dynamic Magnetic Information Storage or Retrieval, subclass 324.2 for tunnel junction effect in a magnetic head.

811.2 Multilayer:

This subclass is indented under subclass 811. Subject matter in which the laminate comprises two or more layers, at least one of which exhibits magneto resistance.

811.3 Super lattice (e.g., giant magneto resistance (GMR) or colossal magneto resistance (CMR), etc.):

This subclass is indented under subclass 811.2. Subject matter in which the multilayered laminate has repeated occurrence of a sequence of layers forming a single sensor.

(1) Note. Each sequence of layers whose sequence periodically repeats is termed a "period". The magnetoresistive response is dependent on the quantity of periods.

811.4 Single film:

This subclass is indented under subclass 811. Subject matter in which the laminate contains a single layer exhibiting magneto resistance.

811.5 With defined structural feature:

This subclass is indented under subclass 811. Subject matter in which the laminate has a particular structure specified such as a micro or macro physical topographic feature.

(1) Note. Sequence of the layers is not provided for in this subclass.

812 Magnetic layer composition:

This subclass is indented under subclass 810. Subject matter in which the laminate has a chemical composition specified for one or more of the magnetic layers.

(1) Note. The term "specified" means that a substance is identified by its chemical name or by its class of chemical compound structure (i.e., greater specificity than "organic compound" or "inorganic compound" is required).

SEE OR SEARCH CLASS:

106, Compositions: Coating or Plastic, particularly subclass 749 for strands, filaments, and records distinguished solely by compositions.

148, Metal Treatment, subclasses 300 through 315 for stock magnetic material claimed as resulting from metal treatment.

206, Special Receptacle or Package, subclasses 307 through 387.15 for a container for removably containing an article which includes machine readable information registered thereon.

235, Registers, subclass 493 for a record containing discrete bits which are coded markings on a record of magnetic material.

252, Compositions, subclasses 62.51 through 62.64 for compositions specialized and designed for use as mag-

netic materials, substances peculiar to such compositions, or processes of making compositions or substances.

346, Recorders, subclasses 134 through 138 for nonmagnetic records.

352, Optics: Motion Pictures, subclasses 1 through 37 for sound recording, including magnetic sound records, combined with motion picture structure.

420, Alloys or Metallic Compositions, appropriate subclasses for alloys or strands recited broadly as "magnetic", or "magnetized" or "permanent magnet" or defined only in terms of their inherently magnetic composition, and for metallic stock or strands composed of a single metal.

813 Substrate composition:
This subclass is indented under subclass 810.
Subject matter in which the laminate has the chemical composition of the substrate identified.

(1) Note. The expression "chemical composition of the substrate identified" means that a substance is identified by its chemical name or by its class of chemical compound (i.e., greater specificity than "glass" or "inorganic compound" is required).

814 With protective film:
This subclass is indented under subclass 810.
Subject matter in which the laminate has a layer or coating disclosed to resist physical or chemical deterioration or damage.

815 With defined laminate structural detail:
This subclass is indented under subclass 810.
Subject matter in which the laminate microstructure or macrostructure has been specified.

(1) Note. The term "specified" means that a substance is identified by its structure name or by its class of structure (i.e., greater specificity than "microstructure" or "macrostructure" is required).

815.1 Head with slider structure:
This subclass is indented under subclass 815.
Subject matter in which the surface of the laminate head has a structure to allow for sliding contact with a magnetic recording media surface.

SEE OR SEARCH CLASS:

360, Dynamic Magnetic Information Storage or Retrieval, subclasses 234.3 through 237.1 for a floating slider in a fluid-bearing head support and subclass 246.2 for a full contact slider.

369, Dynamic Information Storage or Retrieval, subclass 300 for specific slider structure provided on a slider which is part of an optical head.

815.2 With head pole component:
This subclass is indented under subclass 815.
Subject matter in which a chemical or microstructural feature includes a head pole component for reading information stored in the media by sensing transitions of magnetic domains.

816 With interlaminar component (e.g., adhesion layer, etc.):
This subclass is indented under subclass 810.
Subject matter in which the laminate includes a component in between layers (e.g., specified for adhesion or cohesion between adjacent layers).

817 Magneto-optical media stock:
This subclass is indented under subclass 800.
Subject matter for a magnetic recording medium where the magnetic flux intensity from a recorded bit is determined by directing a beam of polarized light at the record surface and detecting the rotation angle of polarization caused by the flux.

SEE OR SEARCH CLASS:

360, Dynamic Magnetic Information Storage or Retrieval, subclass 114.1 for a magnetic record carrier, an element which consists of magnetizable material or comprised of a coating or impregnation of magnetizable material which includes discrete magnetic areas, inserts, spots, etc., each intended for the storage of single bits of information.

369, Dynamic Information Storage or Retrieval, subclasses 13.35 through 13.55 for storage media in combination with a light beam without speci-

fied composition or physical chemistry and subclass 272.1 for information-bearing storage medium with structure having an information-bearing track.

818 Multiple magnetic layers, at least one of which is magneto-optic:
This subclass is indented under subclass 817.
Subject matter in which the laminate medium contains two or more magnetic layers, at least one of which is intended for magneto-optic recording.

819 Unit structure (i.e., three or more differing magnetic layers in series):
This subclass is indented under subclass 818.
Subject matter in which the medium has three or more magnetic layers forming a structure as a unit.

819.1 Reoccurring unit structure:
This subclass is indented under subclass 819.
Subject matter in which the medium has the unit structure repeated multiple times.

819.2 Only three adjacent magnetic layers form series:
This subclass is indented under subclass 819.
Subject matter in which the medium has just three contiguous magnetic layers.

819.3 Only four or six adjacent magnetic layers form series:
This subclass is indented under subclass 819.
Subject matter in which the medium has just four or six contiguous magnetic layers.

819.4 Magnetic layers and at least one intervening nonmagnetic layer (e.g., antiferromagnetic, dielectric, etc.):
This subclass is indented under subclass 819.
Subject matter in which the medium includes at least one nonmagnetic layer, positioned between adjacent magnetic layers (e.g., antiferromagnetic, paramagnetic, etc.).

820 Only two magnetic layers, at least one of which is magneto-optic:
This subclass is indented under subclass 818.
Subject matter in which the medium has only two magnetic layers present, at least one of which is magneto-optic responsive.

820.1 Magnetic layer pairs separated by single nonmagnetic (e.g., antiferromagnetic, dielectric, etc.) layer:
This subclass is indented under subclass 820.
Subject matter in which the medium has two magnetic layers separated by a nonmagnetic layer (e.g., antiferromagnetic, paramagnetic, etc.).

820.2 Adjacent magnetic layers:
This subclass is indented under subclass 820.
Subject matter in which the medium has magnetic layers specified as being directly adjacent each other.

820.3 Having in-plane orientated magnetization:
This subclass is indented under subclass 820.2.
Subject matter in which the medium has magnetic layers with magnetization aligned in the same magnetic plane.

820.4 Magnetic layer composition specified:
This subclass is indented under subclass 820.2.
Subject matter in which the medium has a chemical composition of at least one magnetic layer specified.

(1) Note. The term "specified" means that a substance is identified by its chemical name or by its class of chemical compound (i.e., greater specificity than "organic compound" or "inorganic compound" is required).

820.5 Specified performance related property (e.g., Kerr rotation, etc.):
This subclass is indented under subclass 820.2.
Subject matter in which one or more of the magnetic layers has properties (physical or chemical) related to performance identified.

(1) Note. The term "identified" means that a substance is identified by its property explicitly set forth in definite parameter terms.

820.6 Curie temperature:
This subclass is indented under subclass 820.5.
Subject matter in which the property specified is the Curie temperature of at least one component.

(1) Note. The Curie temperature is the temperature above which the molecular forces of magnetism of paramagnetic bodies cease to exist.

821 Single magneto-optic magnetic layer:
This subclass is indented under subclass 817.
Subject matter in which the one magnetic layer present in the medium is a magneto-optic layer.

822 Magneto-optic magnetic layer contains transition metal:
This subclass is indented under subclass 821.
Subject matter in which the single magneto-optic magnetic layer contains an elemental or an alloyed transition metal.

(1) Note. In the periodic table, transition metals include elements 21 through 30 (scandium through zinc), 39 through 48 (yttrium through cadmium), 57 through 80 (lanthanum through mercury), and 89 through 103 (actinium through lawrencium).

822.1 Magnetic transition metal oxide in magneto-optic layer:
This subclass is indented under subclass 822.
Subject matter in which the single magneto-optic layer has an oxide of a transition metal.

822.2 Having garnet crystal structure:
This subclass is indented under subclass 822.1.
Subject matter in which the magnetic transition metal oxide has the garnet crystal structure.

822.3 Rare-earth or lanthanum series element with iron or cobalt or nickel:
This subclass is indented under subclass 822.
Subject matter in which the medium contains one or more of Fe, Co, or Ni, in addition to one or more rare-earth element (i.e., an element of the group scandium (Sc), yttrium (Y), or lanthanum series) (i.e., elements of atomic numbers 57-71) element.

822.4 With additional element(s) other than rare-earth or lanthanum series element and iron, cobalt, or nickel:
This subclass is indented under subclass 822.3.
Subject matter in which the medium contains one or more elements in addition to the rare-earth or lanthanum series element, with iron or cobalt or nickel that is other than a rare-earth or lanthanum series element or iron or cobalt or nickel.

822.5 Rare-earth or lanthanum series element contained in separate lattice phase (e.g., scandium or yttrium in separate phase from FeCoNi, etc.):
This subclass is indented under subclass 822.3.
Subject matter in which the medium contains more than one phase wherein the rare-earth element is in a separate phase from the iron or cobalt or nickel containing phase.

823 With nonmagnetic metal (e.g., antiferromagnetic metal layer, Cu layer, etc.):
This subclass is indented under subclass 821.
Subject matter in which the medium contains a nonmagnetic metal layer or antiferromagnetic layer.

823.1 Metal reflecting layer (e.g., reflecting polarized beam, etc.):
This subclass is indented under subclass 823.
Subject matter in which the metal layer is for reflecting a beam of (polarized) light.

823.2 Al -, Ag -, Au -, or Cu-base reflecting layer:
This subclass is indented under subclass 823.1.
Subject matter in which the metal reflective layer is an elemental metal or alloy of more than 40% Al (aluminum), Ag (silver), Au (gold), or Cu (copper), or a combination of two or more of these metals.

824 With dielectric layer (e.g., SiO, AlN, ZnS, MgF_2, etc.):
This subclass is indented under subclass 821.
Subject matter in which the medium also contains a layer that is dielectric.

824.1 Plural dielectric layers or sections:
This subclass is indented under subclass 824.
Subject matter in which the dielectric layer is in more than one layer or in portions.

824.2 Plural compounds in single dielectric layer (e.g., mixed layer of TiN and TiC, etc.):
This subclass is indented under subclass 824.
Subject matter in which the dielectric layer includes two or more distinct compounds.

824.3 Dielectric layer having chalcogen (i.e., O, S, Se, or Te) compound:

This subclass is indented under subclass 824. Subject matter in which the dielectric layer includes a chalcogen compound.

(1) Note. The term "chalcogen" includes oxygen, sulfur, selenium, or tellurium.

824.4 Dielectric layer having nitride or carbide compound (e.g., TiN, TiC, etc.):

This subclass is indented under subclass 824. Subject matter in which the dielectric layer has a carbide or nitride compound (e.g., TiC, TiN).

824.5 Dielectric layer having refractive index specified:

This subclass is indented under subclass 824. Subject matter in which the dielectric layer has a numerically specified refractive index.

825 With topcoat:

This subclass is indented under subclass 821. Subject matter in which the medium has a layer on its outermost surface (e.g., carbon or organic compound).

825.1 Lubricant:

This subclass is indented under subclass 825. Subject matter in which the topcoat is a lubricant (i.e., a substance for reducing friction (e.g., perfluoropolyether, etc.)).

826 Thin film media:

This subclass is indented under subclass 800. Subject matter in which the media or magnetizable material is a continuous layer free of polymeric binder having a thickness of approximately 1 angstrom to 100 micrometers.

SEE OR SEARCH CLASS:

148, Metal Treatment, subclasses 300 through 315 for stock magnetic material claimed as resulting from metal treatment.

252, Compositions, subclasses 62.51 through 62.64 for compositions specialized and designed for use as magnetic materials, substances peculiar to such compositions, or processes of making the compositions or substances.

346, Recorders, subclasses 134 through 138 for nonmagnetic records.

352, Optics: Motion Pictures, subclasses 1 through 37 for sound recording, including magnetic sound records, combined with motion picture structure.

360, Dynamic Magnetic Information Storage or Retrieval, subclass 131 for specific structure of a record carrier for the storage of information.

365, Static Information Storage and Retrieval, subclasses 86 and 87 for static memory systems, apparatus, or processes using thin film magnetic shift register where information is transferred (shifted) from one magnetic element to another along an array where the magnetic element is thin film material; and subclass 171 for a nonshifting system where the magnetic element is thin film media.

420, Alloys or Metallic Compositions, appropriate subclasses for alloy stock or strands which are claimed broadly as "magnetic", or "magnetized" or "permanent magnet" or are defined only in terms of their composition but are inherently magnetic, and for metallic stock or strands composed of a single metal.

430, Radiation Imagery Chemistry: Process, Composition, or Product Thereof, subclass 39 for products or processes where magnetic force forms an image.

827 Multiple magnetic layers:

This subclass is indented under subclass 826. Subject matter in which the medium contains more than one magnetic layer.

SEE OR SEARCH CLASS:

360, Dynamic Magnetic Information Storage or Retrieval, appropriate subclasses for magnetic recording media that consists of a layer of magnetizable material deposited on a substrate that is intended for the storage of more than a single bit of information.

828 Magnetic layers separated by nonmagnetic (antiferromagnetic, Cu, dielectric, etc.) layer(s):
This subclass is indented under subclass 827.
Subject matter in which there is at least one intervening nonmagnetic or antiferromagnetic layer between magnetic layers.

828.1 Three or more magnetic layers on one substrate side:
This subclass is indented under subclass 828.
Subject matter in which the medium has at least three magnetic layers on a single side of the substrate, with at least one intervening nonmagnetic or antiferromagnetic layer.

829 Differing compositions in plurality of magnetic layers (e.g., layer compositions having differing elemental components, different proportions of elements, etc.):
This subclass is indented under subclass 827.
Subject matter having two or more magnetic layers, with each layer having a different composition.

830 Plural magnetic layers of same empirical composition, each with different structure (e.g., differing crystalline lattice, atomic structure, etc.):
This subclass is indented under subclass 827.
Subject matter having a plurality of magnetic layers having the same chemical constituents but differing in crystal lattice or molecular arrangement.

831 Single magnetic layer having two or more nonmagnetic underlayers (e.g., seed layers, barrier layers, etc.):
This subclass is indented under subclass 826.
Subject matter in which the medium has a single magnetic layer and at least two nonmagnetic layers between substrate and the magnetic layer.

(1) Note. "Underlayer" encompasses a layer designated by position (e.g., precoat layer, prelayer, base layer, sublayer, ground layer) or designated by function such as nucleation layer, seed layer, barrier layer, corrosion prevention layer, diffusion prevention layer, or texture layer.

(2) Note. This subclass includes chemically modified substrate surface (e.g., oxidized, etc.).

831.1 Including NiP underlayer:
This subclass is indented under subclass 831.
Subject matter in which the medium includes NiP underlayer.

831.2 Specified physical structure of underlayer (e.g., texture, etc.):
This subclass is indented under subclass 831.
Subject matter in which the medium underlayer includes an identified physical structure.

(1) Note. This subclass provides for microstructure influencing magnetic properties.

SEE OR SEARCH THIS CLASS, SUBCLASS:
848.2, and 848.3, for disk substrates having a specified roughness or texture above the microscale (i.e., more than 100 micrometers).
847.4 through 847.7 , for substrates with texture as an end result of a layer.

832 Single magnetic layer and single underlayer:
This subclass is indented under subclass 826.
Subject matter in which the medium has a single magnetic layer and a single layer between substrate and the magnetic layer.

832.1 Co or Co-base magnetic layer:
This subclass is indented under subclass 832.
Subject matter in which the medium single magnetic layer is cobalt or cobalt-base alloy containing 40% or more cobalt.

832.2 Cr or Cr-base underlayer:
This subclass is indented under subclass 832.1.
Subject matter in which the medium single underlayer consists of chromium or chromium-base alloy containing 40% or more chromium.

832.3 Ni or Ni-base underlayer:
This subclass is indented under subclass 832.
Subject matter in which the medium single underlayer consists of nickel or nickel-base alloy containing 40% or more nickel.

832.4 Polymeric underlayer (e.g., polymeric adhesion layer, plasma polymerized carbon, etc.):
This subclass is indented under subclass 832.
Subject matter in which the medium single underlayer is polymeric.

833 Single magnetic layer with plural overcoat layers:
This subclass is indented under subclass 826.
Subject matter in which the medium includes a single magnetic layer and two or more layers on its upmost side.

(1) Note. The outer surface side is the side facing away from the substrate and adjacent to the magnetic layer.

833.1 Inorganic overcoat layer:
This subclass is indented under subclass 833.
Subject matter in which the medium has an overcoat layer that is inorganic.

(1) Note. The term "inorganic" means that the components do not include organic carbon bonds.

833.2 Carbon overcoat (e.g., graphite, diamond like, doped carbon, etc.):
This subclass is indented under subclass 833.1.
Subject matter in which at least one of the inorganic overcoat layers is made of carbon (e.g., graphite, etc.).

833.3 With lubricant over carbon layer:
This subclass is indented under subclass 833.2.
Subject matter in which the overcoat layer includes a lubricant (i.e., a substance for reducing friction or wear) directly on the carbon layer.

(1) Note. Included in this subclass are lubricants which are chemically or physically bonded to the carbon layer.

833.4 Plural lubricant layers over carbon layer:
This subclass is indented under subclass 833.3.
Subject matter in which the medium has at least two distinct layers of lubricant over the carbon layer.

833.5 Having elemental nitrogen in carbon layer:
This subclass is indented under subclass 833.2.
Subject matter in which the carbon layer contains uncombined nitrogen.

833.6 With lubricant:
This subclass is indented under subclass 833.5.
Subject matter in which the carbon layer has a lubricant (i.e., a substance for reducing friction).

834 Single magnetic layer with single specified overcoat layer:
This subclass is indented under subclass 826.
Subject matter in which the medium has a single magnetic layer and a single overcoat layer.

SEE OR SEARCH THIS CLASS, SUBCLASS:
833.3, 833.4, and 833.6, for specific lubricants in combination with a specified overcoat layer.

835 Carbon overcoat (e.g., graphite, diamond like, doped carbon, etc.):
This subclass is indented under subclass 834.
Subject matter in which the single overcoat layer is made of carbon (e.g., graphite, etc.).

835.1 Sputter-formed carbon overcoat:
This subclass is indented under subclass 835.
Subject matter in which the single elemental carbon overcoat layer has been formed by sputtering.

SEE OR SEARCH CLASS:
204, Chemistry: Electrical and Wave Energy, subclass 192.11 for sputter deposition processes.

835.2 Plasma-formed carbon overcoat:
This subclass is indented under subclass 835.
Subject matter in which the single elemental carbon overcoat layer of the medium has been formed by plasma deposition.

SEE OR SEARCH CLASS:
204, Chemistry: Electrical and Wave Energy, subclass 192.38 for vacuum arc discharge coating utilizing processes for the deposition of a coating onto a substrate within a vacuum environment by the action of an arc

discharge between an anode and a cathode wherein the source material is the cathode, per se, or the source material is on the cathode.

219, Electric Heating, particularly subclass 73.11, 73.21, and 76.1-77 for coating operations that involve a buildup of metal coating on a metal work piece and wherein an arc between an electrode and the work is utilized.

427, Coating Processes, subclasses 127 through 132 for forming a magnetic coating.

835.3 Fullerene carbon:
This subclass is indented under subclass 835. Subject matter in which the single elemental carbon overcoat layer contains fullerene carbon.

(1) Note. Fullerene carbon is generally carbon with 20-1,000 atoms having pentagonal or hexagonal faces.

835.4 Containing elemental nitrogen in carbon overcoat:
This subclass is indented under subclass 835. Subject matter in which the carbon overcoat layer contains uncombined nitrogen.

835.5 Textured surface overcoat:
This subclass is indented under subclass 835. Subject matter in which the single elemental carbon overcoat layer has a specified texture or a particular external surface quality.

835.6 Organic compound overcoat:
This subclass is indented under subclass 834. Subject matter in which the single overcoat layer of the medium is comprised of an organic compound.

(1) Note. When the expression "organic compound" is used in this class, it means a compound characterized by two carbons bonded together, one atom of carbon bonded to at least one atom of hydrogen or halogen, or one atom of carbon bonded to at least one atom of nitrogen by a single or double bond.

835.7 Fluorocarbon:
This subclass is indented under subclass 835.6. Subject matter in which the overcoat includes an organic compound of fluorine.

835.8 Perfluoropolyether:
This subclass is indented under subclass 835.7. Subject matter in which the fluorocarbon overcoat consists of a perfluoropolyether compound.

836 Single magnetic layer:
This subclass is indented under subclass 826. Subject matter in which the medium has only a single magnetic layer.

836.1 Metal or alloy magnetic layer:
This subclass is indented under subclass 836. Subject matter in which the medium consists of only elemental metal or alloy.

836.2 Magnetic layer having oxygen (i.e., uncombined or oxide):
This subclass is indented under subclass 836. Subject matter in which the magnetic layer includes magnetic metal oxide or a magnetic layer with uncombined oxygen present within the magnetic elemental metal or the alloy lattice structure.

836.3 Magnetic layer having inorganic compound of Si, N, P, B, H, or C:
This subclass is indented under subclass 836. Subject matter in which the magnetic layer includes an inorganic compound of Si, N, P, B, H, or C within the layer (e.g., CoPtCrB, etc.).

837 With nonmagnetic backcoat layer (e.g., inorganic particles in polymer, carbon, etc.):
This subclass is indented under subclass 826. Subject matter in which the medium has a nonmagnetic layer on the substrate side opposite the magnetic layer.

(1) Note. The backcoat layer is the layer directly contacting the substrate on the side opposite the side having a magnetic layer.

SEE OR SEARCH THIS CLASS, SUBCLASS:

847.1, 847.4, and 847.5, for substrate which is a laminate or which has precoating

on a side opposite to the magnetic layer.

838 Binder media:
This subclass is indented under subclass 800. Subject matter wherein the magnetizable material of the recording medium dispersed in a binder (i.e., magnetic particulate dispersed in binder).

(1) Note. A binder is secondary material which is usually an organic polymer holding a layer having magnetic particulate material together.

SEE OR SEARCH CLASS:
252, Compositions, subclasses 62.51 through 62.64 for compositions specialized and designed for use as magnetic materials, substances peculiar to such compositions, or processes of making compositions or substances.
346, Recorders, subclasses 134 through 138 for nonmagnetic records.
352, Optics: Motion Pictures, subclasses 1 through 37 for sound recording, including magnetic sound records, combined with motion picture structure.
360, Dynamic Magnetic Information Storage or Retrieval, subclass 131 for specific structure of a record carrier for the storage of information.

839 Multiple magnetic layers:
This subclass is indented under subclass 838. Subject matter in which the magnetic recording medium has two or more magnetic layers.

839.1 Magnetic layers only on single side of substrate:
This subclass is indented under subclass 839. Subject matter in which the medium has plurality of magnetic layers on a single side of the substrate (i.e., two or more magnetic layers).

(1) Note. These magnetic layers are all present on the same side of the substrate.

839.2 Two magnetic layers on single side of substrate:
This subclass is indented under subclass 839.1. Subject matter in which the medium has exactly two magnetic layers on the same side of the substrate.

(1) Note. These magnetic layers are all present on the same side of the substrate.

839.3 Chemically specified magnetic material:
This subclass is indented under subclass 839.2. Subject matter in which the magnetic composition in one or more of the layers has been chemically identified.

(1) Note. The expression "chemically identified" means that a substance is identified by its chemical name or by its class of chemical compound (i.e., greater specificity than generic "ferrite" is required).

839.4 Chemically specified binder:
This subclass is indented under subclass 839.2. Subject matter in which the medium includes a chemically identified binder in the magnetic layers.

(1) Note. The expression "specific binder" means that a substance is identified by its chemical name or by its class of chemical compound (i.e., greater specificity than "polymeric" or "inorganic compound" is required).

839.5 With chemically identified adjuvant:
This subclass is indented under subclass 839.2. Subject matter in which the medium includes a chemically identified additional component to enhance binder effectiveness.

(1) Note. The term "identified" means that a substance is identified by its chemical name or by its class of chemical compound (i.e., greater specificity than "organic compound" or "inorganic compound" is required).

839.6 Specified property (e.g., density, Tg, etc.):
This subclass is indented under subclass 839.2. Subject matter in which a characteristic of the medium (e.g., density, glass transition temperature, Vickers hardness, Young's modulus of the magnetic layers, etc.) is identified.

840 Single magnetic layer with underlayer:
This subclass is indented under subclass 838. Subject matter in which the medium has a sin-

gle magnetic layer and one or more nonmagnetic layers in contact with the substrate and between the substrate and the magnetic layer.

(1) Note. Included in this subclass are transfer tapes with a removable single magnetic layer.

SEE OR SEARCH THIS CLASS, SUBCLASS:

40.1-42.3, for a nonmagnetic product which layers lie removable on the outermost surface of the web or sheet.

200, for a nonmagnetic product which must be heated to destroy the adhesion or cohesion of a layer to an adjacent layer or component.

202, for a nonmagnetic product which layers lie on the outermost surface of the web or sheet and are removable from the web or sheet.

352, for a nonmagnetic product web or sheet having a layer of adhesive as an outermost coating and a release or antistick coating associated therewith on the side of the base opposite to the adhesive layer.

840.1 Underlayer composition or structure:
This subclass is indented under subclass 840. Subject matter in which the medium has the chemical composition or arrangement of atoms of molecules of one or more of the underlayers specified.

(1) Note. The term "specified" means that a substance is identified with greater specificity than "organic compound" or "inorganic compound".

840.2 Nonmagnetic particles in underlayer (e.g., Al_2O_3 particles, etc.):
This subclass is indented under subclass 840.1. Subject matter in which the medium underlayer contains nonmagnetic particles.

840.3 Carbon black particles:
This subclass is indented under subclass 840.2. Subject matter in which the medium underlayer contains carbon black particles.

840.4 Lubricant in underlayer (e.g., perfluoether, etc.):
This subclass is indented under subclass 840.1. Subject matter in which the medium underlayer contains a material identified as a lubricant (i.e., a substance for reducing friction or wear).

(1) Note. Included in this subclass are migrating lubricants, which are intended to move around within the medium, as well as single-layer lubricants.

840.5 Chemically identified underlayer binder:
This subclass is indented under subclass 840.1. Subject matter in which the medium underlayer contains a chemically identified binder.

(1) Note. The expression "chemically identified" means that a substance is identified by its chemical name or by its class of chemical compound (i.e., greater specificity than "polymeric" is required).

840.6 Magnetic layer chemical composition:
This subclass is indented under subclass 840. Subject matter in which the composition of the single magnetic layer in the medium is specified by physical chemistry or chemical compound (e.g., by lattice structure, etc.).

(1) Note. The term "specified" means that a substance is identified by its chemical name or by its class of chemical compound (i.e., greater specificity than "ferromagnetic" or "inorganic compound" is required).

841 Single magnetic layer with overcoat:
This subclass is indented under subclass 838. Subject matter in which the medium has an overcoat layer on the magnetic layer bearing side of the substrate (i.e., the head contact surface).

841.1 Two overcoat layers:
This subclass is indented under subclass 841. Subject matter in which the medium has exactly two overcoat layers.

SEE OR SEARCH THIS CLASS, SUBCLASS:

40.1 through 42.3 , for a nonmagnetic product which layers lie removable on

the outermost surface of the web or sheet.

200, for a nonmagnetic product which must be heated to destroy the adhesion or cohesion of a layer to an adjacent layer or component.

202, for a nonmagnetic product which layers lie on the outermost surface of the web or sheet and are removable from the web or sheet.

352, for a nonmagnetic product web or sheet having a layer of adhesive as an outermost coating and a release or antistick coating associated therewith on the side of the base opposite to the adhesive layer.

847.1, for a composite or coated organic polymer substrate.

841.2 Chemical composition of overcoat specified:
This subclass is indented under subclass 841.
Subject matter in which the overcoat layer chemical composition is specified chemically or physically (e.g., by lattice structure, etc.).

(1) Note. The expression "chemical composition is specified" means that a substance is identified by its chemical name or by its class of chemical compound (i.e., greater specificity than "organic compound" or "inorganic compound" is required).

841.3 Lubricant in overcoat layer:
This subclass is indented under subclass 841.2.
Subject matter in which the overcoat layer has a lubricant (i.e., a substance to reduce friction or wear).

842 Single magnetic layer:
This subclass is indented under subclass 838.
Subject matter in which the medium has only one magnetic layer.

842.1 Having chemically specified magnetic particles (e.g., FeCo, CoNiPt, etc.):
This subclass is indented under subclass 842.
Subject matter in which the single magnetic layer contains magnetic particles specified.

(1) Note. The expression "chemically specified" means that a substance is identified by chemical name or by chemical compound structure (i.e., greater specificity than "ferromagnetic" is required).

842.2 Organic compound encapsulated or coated magnetic particles (e.g., polystyrene encapsulated magnetic particles, etc.):
This subclass is indented under subclass 842.1.
Subject matter in which the magnetic particles in the magnetic layer have been coated or encapsulated with an organic compound.

842.3 Ferromagnetic (elemental or alloy) particles:
This subclass is indented under subclass 842.1.
Subject matter in which the magnetic particles in the layer are composed of a ferromagnetic metal or alloy.

842.4 Inorganic compound encapsulated or coated magnetic particles (e.g., Co oxide coated Fe particles, etc.):
This subclass is indented under subclass 842.3.
Subject matter in which the magnetic particles in the magnetic layer are coated or encapsulated with an element or an inorganic compound (e.g., Co or Co oxide coated Fe particles, etc.).

842.5 Magnetic metal oxide, nitride, or carbide particles:
This subclass is indented under subclass 842.1.
Subject matter in which magnetic particles in the magnetic layer are metal oxide, metal nitride, or metal carbide compound particles.

842.6 Inorganic compound encapsulated or coated magnetic particles (e.g., Co coated Fe_2O_3, etc.):
This subclass is indented under subclass 842.5.
Subject matter in which magnetic particles in the magnetic layer are coated with an element or inorganic compound.

842.7 Chromium oxide:
This subclass is indented under subclass 842.5.
Subject matter in which the magnetic particles in the magnetic layer are composed of chromium oxide.

842.8 Hexagonal or plate lattice-shaped oxides:
This subclass is indented under subclass 842.5.
Subject matter in which the magnetic particles have a hexagonal or plate lattice shape.

842.9 Magnetic metal nitride or carbide:
This subclass is indented under subclass 842.5. Subject matter in which the magnetic particles contained in the magnetic layer are metallic nitride or carbide compound particles.

843 With organic compound adjuvant in magnetic layer:
This subclass is indented under subclass 842. Subject matter in which the medium also has an organic compound adjuvant in the magnetic layer to modify or enhance a property.

(1) Note. This subclass does not include a binder.

SEE OR SEARCH THIS CLASS, SUBCLASS:
839.5, for magnetic recording media with binders that include an adjuvant.

843.1 Dispersant or surfactant:
This subclass is indented under subclass 843. Subject matter in which organic compound adjuvant is a surface active dispersant or surfactant.

843.2 Inhibitor:
This subclass is indented under subclass 843. Subject matter in which the organic compound adjuvant delays or retards a chemical change in one or more layer.

843.3 Lubricant:
This subclass is indented under subclass 843. Subject matter in which the organic compound adjuvant is a lubricant (i.e., a substance for reducing friction or wear).

SEE OR SEARCH THIS CLASS, SUBCLASS:
833.3, 833.4, and 833.6, for lubricating layer on binder media.

843.4 Ester:
This subclass is indented under subclass 843.3. Subject matter in which the lubricant is an ester (i.e., a compound formed from reacting an organic acid and an alcohol).

843.5 Fluorine compound:
This subclass is indented under subclass 843.3. Subject matter in which the lubricant is a fluorine compound.

843.6 Silicon compound:
This subclass is indented under subclass 843.3. Subject matter in which the lubricant is an organic compound that includes silicon.

843.7 Acids, amines, amides, or salts thereof:
This subclass is indented under subclass 843. Subject matter in which the organic compound adjuvant is an amine, amide, acid, or their salts.

844 With nonmagnetic particles (e.g., hematite particles, polystyrene, and polyisoprene copolymer, etc.):
This subclass is indented under subclass 842. Subject matter in which the magnetic layer contains nonmagnetic particles.

844.1 Only single-type nonmagnetic particle:
This subclass is indented under subclass 844. Subject matter in which the medium magnetic layer has only one structure nonmagnetic particle.

844.2 Surface modified particle (e.g., aluminum oxide coated particles, etc.):
This subclass is indented under subclass 844.1. Subject matter in which the magnetic layer contains nonmagnetic particles whose surfaces have been altered.

844.3 Alumina particle (i.e., $Al_2 O_3$):
This subclass is indented under subclass 844.1. Subject matter in which the nonmagnetic particle is a compound of alumina (aluminum oxide).

844.4 Carbon black particle (e.g., lamp carbon, etc.):
This subclass is indented under subclass 844.1. Subject matter in which the nonmagnetic particle is a compound of carbon in the form of carbon black.

844.5 Chemically specified polymer binder:
This subclass is indented under subclass 842. Subject matter in which the magnetic layer medium has an identified polymeric binder

having a specified physical or chemical structure.

(1) Note. The expression "chemically specified" means that a substance is identified by its chemical name or by its class of chemical compound (i.e., greater specificity than "polymeric" is required).

844.6 Radiation cured (i.e., cross linked) binder:
This subclass is indented under subclass 844.5. Subject matter in which the binder is one that has been cured by radiation.

(1) Note. This subclass provides for radiation cross-linked binders. Radiation cross-linking may cause chain scission and differences in the magnetic layer from other induced cross linking.

844.7 Plural chemically specified polymeric binders in single layer:
This subclass is indented under subclass 844.5. Subject matter wherein two or more different binders have been chemically identified as present in the magnetic layer.

(1) Note. More than a single binder must be identified as to its specific structure; nominal recitation of a second binder, or relationship with a second binder, is not proper for this subclass.

SEE OR SEARCH THIS CLASS, SUBCLASS:
844.5, and 844.6, for single binder with specific disclosed structure.

844.71 Polyurethane binder with vinyl chloride binder:
This subclass is indented under subclass 844.7. Subject matter wherein the plural binders in the magnetic layer are a specific polyurethane compound binder and a specific vinyl chloride compound binder.

844.8 Polyurethane binder:
This subclass is indented under subclass 844.5. Subject matter wherein the single binder present in the magnetic layer is specific polyurethane compound.

844.9 Vinyl chloride binder:
This subclass is indented under subclass 844.5. Subject matter wherein the single binder in the magnetic layer is a specific structure polyvinyl chloride.

845 Nonmagnetic backcoat layer (e.g., polysiloxane, etc.):
This subclass is indented under subclass 838. Subject matter in which the medium has a nonmagnetic layer opposite the magnetic recording layer side of the substrate.

(1) Note. This subclass provides for a medium having a nonmagnetic substrate coating opposite the magnetic layer side of the substrate.

SEE OR SEARCH THIS CLASS, SUBCLASS:
846.2 through 846.4 , 847.1, and 847.5, for laminated, coated, or surface treated magnetic recording composite substrates.

845.1 Nonmagnetic particles in backcoat layer (TiO_2 , ZnO, SiO_2 , etc.):
This subclass is indented under subclass 845. Subject matter in which the nonmagnetic backcoat layer contains nonmagnetic particles.

845.2 Carbon black particles:
This subclass is indented under subclass 845.1. Subject matter in which the nonmagnetic backcoat layer contains carbon black particles.

845.3 With additional nonmagnetic particles:
This subclass is indented under subclass 845.2. Subject matter in which the backcoat layer has carbon black particles and other nonmagnetic particles in the binder.

845.4 With additive (e.g., lubricant, etc.):
This subclass is indented under subclass 845. Subject matter in which the nonmagnetic backcoat layer contains an additive component in addition to particles and binders (e.g., a substance that reduces friction, etc.).

845.5 Having specified property (e.g., average roughness (Ra), etc.):
This subclass is indented under subclass 845. Subject matter in which the backcoat layer has a physical property identified.

845.6 For servo tracking:
This subclass is indented under subclass 845.5. Subject matter in which the medium backcoat layer provides for servo tracking information, including closed-loop control of the alignment between track and information processing means, on the backcoat layer.

SEE OR SEARCH CLASS:
360, Dynamic Magnetic Information Storage or Retrieval, subclasses 77.01 through 77.17 for track centering aligning a transducer head with the midpoint of a continuous information containing path.

845.7 Chemically specified polymeric binder:
This subclass is indented under subclass 845. Subject matter in which the binder of the backcoat layer has been specified chemically.

(1) Note. The expression "chemically specified" means that a substance is identified by its chemical name or by its class of chemical compound (i.e., greater specificity than "polymeric" is required).

846 Magnetic recording media substrate:
This subclass is indented under subclass 800. Subject matter in which a layer or laminate provides physical integrity to a magnetic recording media by acting as base or support for a magnetic recording layer.

(1) Note. This subclass provides for media details substrate set forth with chemical or structural specificity.

SEE OR SEARCH CLASS:
360, Dynamic Magnetic Information Storage or Retrieval, subclass 131 for specific structure of a record carrier for the storage of information.

846.1 Inorganic substrate:
This subclass is indented under subclass 846. Subject matter in which the substrate is composed of inorganic material.

SEE OR SEARCH THIS CLASS, SUBCLASS:
846.2, and 846.3, for inorganic substances contained in a polymeric matrix.

846.2 Composite or coated substrate (e.g., ceramic-epoxy composite, etc.):
This subclass is indented under subclass 846.1. Subject matter in which the substrate has two or more contiguous layers or portions of distinct components (e.g., glass containing metallic particles, etc.).

(1) Note. Included in this subclass are an inorganic structural element and an organic compound as metallic particles and resin, etc.

846.3 Silicon compound coating:
This subclass is indented under subclass 846.2. Subject matter in which the composite substrate has a contiguous layer of a silicon compound.

846.4 Anodized or oxidized aluminum or aluminum-base alloy:
This subclass is indented under subclass 846.2. Subject matter in which an aluminum or aluminum-base alloy substrate has an oxide coating or has been anodized or otherwise oxidized.

(1) Note. Included in this subclass are substrates with filled pores that comprise anodized or oxidized aluminum or aluminum-based alloy.

846.5 Carbon substrate:
This subclass is indented under subclass 846.1. Subject matter in which the substrate is composed of elemental carbon.

846.6 Metallic (i.e., elemental or alloy) substrate:
This subclass is indented under subclass 846.1. Subject matter in which the substrate is metallic.

(1) Note. This subclass includes metals in elemental and alloy form.

846.7 Al or Al-base alloy substrate:
This subclass is indented under subclass 846.6. Subject matter in which the substrate is composed of elemental aluminum or an aluminum-base alloy (i.e., an alloy containing 40% or more aluminum).

846.8 Ti or Ti-base alloy substrate:
This subclass is indented under subclass 846.6. Subject matter in which the substrate is composed of elemental titanium or a titanium base alloy (i.e., an alloy containing 40% or more titanium).

846.9 Glass or ceramic substrate:
This subclass is indented under subclass 846.1. Subject matter in which the substrate is composed of glass or ceramic.

(1) Note. This subclass includes amorphous and crystalline glasses as well as ceramic compositions.

SEE OR SEARCH THIS CLASS, SUBCLASS:
426, for a layer of quartz or glass next to a nonmagnetic material.
848.2, for glass in ceramic substrates with texture.

847 Organic polymer substrate:
This subclass is indented under subclass 846. Subject matter in which the substrate is composed of solid polymer compound or polymeric composition (e.g., polyurethane, melamine resin, etc.).

SEE OR SEARCH THIS CLASS, SUBCLASS:
847.6, for a polymeric composition comprised of one or more polymers and/or inorganic particulate components.

847.1 Composite or coated nonesterfied substrate:
This subclass is indented under subclass 847. Subject matter in which the substrate is other than an ester and composed of plural layers (i.e., laminate or distinct nonparticulate components contained in a single layer).

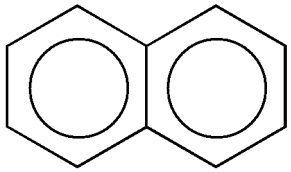
(1) Note. A coating on an organic substrate directed to the improvement of the properties of the substrate and not affecting the crystalline anisotropy of a subsequently deposited layer (e.g., a coating solely for adhesive, texture, etc.) is provided for in this subclass.

(2) Note. Included in this subclass are substrate leader and trailer tapes.

847.2 Polyester substrate (e.g., polyethylene terephthalate, etc.):
This subclass is indented under subclass 847. Subject matter in which the polymer substrate includes an ester group thereon such as carboxylic acid ester.

SEE OR SEARCH THIS CLASS, SUBCLASS:
847.1, for a composite or coated organic polymer substrate.

847.3 Containing naphthalene ring (e.g., polyethylenenaphthalate, etc.):
This subclass is indented under subclass 847.2. Subject matter in which polyester substrate contains a naphthalene ring structure.



Example of a naphthalene ring structure.

847.4 Laminate of two or more layers:
This subclass is indented under subclass 847.2. Subject matter in which the polyester polymer substrate is composed of two or more layers, at least one of which is the polyester layer.

847.5 Coated or surface treated layer (e.g., by corona discharge, etc.):
This subclass is indented under subclass 847.2. Subject matter in which the polyester polymer layer has been coated or surface treated.

(1) Note. Included in this subclass are polyester substrate leader and trailer tapes.

847.6 Containing particles (e.g., aluminum carbonate particles, calcium carbonate particles, etc.):
This subclass is indented under subclass 847.2. Subject matter in which the single polyester polymer layer contains particles (e.g., aluminum carbonate particles, calcium carbonate particles, etc.).

847.7 Having specific surface feature or roughness (e.g., by added particles, etc.):
This subclass is indented under subclass 847.6. Subject matter in which the single polyester polymer layer, which contains particles, has a definite surface feature or roughness.

847.8 Polymer containing specified ring structure:
This subclass is indented under subclass 847. Subject matter in which the substrate layer contains an organic ring structure such as benzyl groups, 1,4-dihydroxydimethylbenzene, etc.

848 Circular shape (e.g., disk, etc.):
This subclass is indented under subclass 846. Subject matter in which the substrate is in the form of a circular disk.

SEE OR SEARCH THIS CLASS, SUBCLASS:
900, for a collection of magnetizable stock material.

SEE OR SEARCH CLASS:
360, Dynamic Magnetic Information Storage or Retrieval, subclass 135 for a disc having information recorded thereon in magnetic form.
369, Dynamic Information Storage or Retrieval, subclasses 272.1 through 291.1 for a disc having information recorded thereon in the form of grooves.

848.1 Having zones (e.g., landing zone or contact stop/start (CSS) zone, etc.):
This subclass is indented under subclass 848. Subject matter in which the circular shape substrate has areas or regions distinguished from adjacent parts by a distinctive feature or characteristic (e.g., landing zone or contact stop/start (CSS) zone, data zone, etc.).

848.2 Specified texture or roughness (e.g., average roughness (Ra), etc.):
This subclass is indented under subclass 848. Subject matter in which the disk substrate has a specified surface finish, irregularity, or amount of surface unevenness (e.g., Ra, Rz, etc.).

848.3 Uniform texture:
This subclass is indented under subclass 848.2. Subject matter for a disk substrate where the texture projections or "bumps" are arranged in an orderly fashion relative to a surface (e.g., by laser irradiation or photolithography).

(1) Note. A uniform texture is also known in the art as a "regular" texture.

848.4 Stretched surface:
This subclass is indented under subclass 848. Subject matter in which the disc substrate surface has been extended by stretching.

848.5 Having specified pits, tracks, or indicia:
This subclass is indented under subclass 848. Subject matter in which the disk substrate has depressions or grooves (e.g., pits which may be used for address information).

SEE OR SEARCH CLASS:
235, Registers, subclass 493 for a record containing discrete bits of magnetic material, the bits being coded markings on a record.
360, Dynamic Magnetic Information Storage or Retrieval, subclass 134 for a recording tape having recording thereon.

848.6 Edge feature (e.g., chamfered edge, etc.):
This subclass is indented under subclass 848. Subject matter in which the disk substrate has edge of particular profile or coating at the outer extremity of the disk.

848.7 Disk in holder (e.g., disk in casing, etc.):
This subclass is indented under subclass 848. Subject matter in which the disk is within an enclosure.

(1) Note. This subclass provides for a medium wherein the circular-shaped substrate is within a container distinguished by composition.

SEE OR SEARCH CLASS:

206, Special Receptacle or Package, subclasses 307 through 387.15 for a container for removably containing an article which includes machine readable information registered thereon.

360, Dynamic Magnetic Information Storage or Retrieval, subclass 133 for specific structure of a record carrier in the form of a disk distinguished by the container in which it is housed.

848.8 Disk property resulting from specified process (e.g., injection molding, photolithography, sintering, etc.):

This subclass is indented under subclass 848. Subject matter in which the disk has a property that is the product of a specific method of production such as a specified shaping method (e.g., injection molding, photolithography, sintering, etc.).

(1) Note. Mere recitation of a product produced by a method is not sufficient to place a patent in this subclass. The product of a specific method with parameters must be recited as a description of the disk.

848.9 Magneto-optic media disc:

This subclass is indented under subclass 848. Subject matter in which the disk substrate has identified utility as a magneto-optic disk substrate.

CROSS-REFERENCE ART COLLECTIONS

The following subclasses are collections of published disclosures pertaining to various specified aspects of the stock material art which aspects do not form appropriate bases for subclasses in the foregoing classification (i.e., subclasses superior hereto in the schedule), wherein original copies of patents are placed on the basis of the structure or chemical composition of a layer* or layers*. These subclasses assist a search based on remote function or physical characteristic of the stock material and may be of further assistance to the searcher, either as a starting point in searching this class or as an indication of further related fields of search inside or outside the class.Thus, there is here provided a further path of access for retrieval of a limited number of types of disclosures.

(1) Note. Disclosures are placed in these subclasses for their value as references and as leads to appropriate main or secondary fields of search, without regard to their original classification or their claimed subject matter.

(2) Note. The disclosures found in the following subclasses are examples, only, of the indicated subject matter, and in no instance do they represent the entire extent of the prior art.

900 Stock material product which (1) produces magnetic of force and due to such lines of force is acted upon, or acts upon another part or object, to produce an effect, or (2) is acted upon by magnetic lines of force produced by another object.

SEE OR SEARCH CLASS:

252, Compositions, subclass 62.51 for magnetic compositions.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 296+.

336, Inductor Devices, subclasses 233+ for a magnet, or magnetic material including structure, (e.g., lamination of at least two magnetic layers) disclosed as a core for a coil, i.e., transformer or inductor device.

360, Dynamic Magnetic Information Storage or Retrieval, appropriate subclasses, for a layered product which is uniquely designed to store or record information by a change or variation in magnetic state of the device.

427, Coating Processes, subclasses 152+ for the method of making a product having magnetic features by applying a magnetic coating to a base or by applying a coating to a magnetic base.

901 Stock material product which is an electric circuit formed by applying conductive material in a predetermined pattern onto an insulating sheet as printing with electrically conductive ink, by electroplating, by etching, coating, etc.

SEE OR SEARCH CLASS:

29, Metal Working, subclasses 846+ for miscellaneous methods of making printed circuits.

174, Electricity: Conductors and Insulators, subclasses 250+ for a preformed circuit on a planiform insulator.

216, Etching a Substrate: Processes, subclasses 13+ for processes not otherwise provided for involving etching in the manufacturing of electric circuits.

427, Coating Processes, subclasses 96.1 through 99.5 for a process of coating a substrate to produce an integrated or printed circuit or circuit board.

439, Electrical Connectors, subclasses 55+ for an electrical connector comprising or combined with a panel circuit arrangement, e.g., a printed circuit board.

902 Stock material product comprising a fiber* or filament* specifically designed to have a high tensile or breaking strength.

SEE OR SEARCH THIS CLASS, SUBCLASS:

366, and 367+, for a filament* or fiber* made of boron or a compound thereof or of carbon or a carbide (usually silicon carbide), which fiber* or filament* is generally of the high-modulus type.

903 Stock material product comprising a fiber* or filament* having a diameter less than 100 microns or approximately 4 mils.

903.3 RECYCLED MATERIALS:
Patents disclosing stock materials made, at least in part, from material, or articles previously used, or salvaged from scrap, or waste.

SEE OR SEARCH THIS CLASS, SUBCLASS:

2, for trash, or refuse which has been compacted for ready disposal.

576, for a package of metal scrap suitable for melting.

904 Stock material product which comprises a manmade web* or sheet* which looks and feels like a natural tanned animal skin (leather).

SEE OR SEARCH THIS CLASS, SUBCLASS:

151, for a web or sheet having an artificially made leather grain surface.

473, for a laminated product comprising a layer* of natural animal skin or membrane.

904.4 WALL AND SHELF COVERING:
Patents disclosing stock materials specially adapted to be used for covering vertical surfaces, or horizontal surfaces not subject to floor, or vehicle traffic.

905 Stock material which is, or incorporates therein a material which disseminates or distributes into the ambient an aroma or scent either by diffusion or unhurried vaporization or by fracturing a capsule containing the aromatic or scent material.

SEE OR SEARCH THIS CLASS, SUBCLASS:

307, for a composite* or sheet* in which one component* is porous or cellular* and in which there is a liquid (which may be aromatic or scented) in encapsulated form.

SEE OR SEARCH CLASS:

239, Fluid Sprinkling, Spraying, and Diffusing, subclasses 34+ for a slow diffuser, per se, i.e., one which spreads or disperses material into the ambient by (1) vaporization from an open container or holder (2) capillary porous or wick type feed, (3) by mere drip through the air, or (4) by sublimation, all due to being exposed to the ambient air without the use of forced draft; see the search notes in that subclass (239/34*) for other similar art.

906 Stock material product which has been rolled or coiled upon itself as in the case of a coil of wire or roll of pressure sensitive tape.

SEE OR SEARCH THIS CLASS, SUBCLASS:

343+, for a composite*, sheet*, web* or tape which has an adhesive outermost layer (e.g., pressure sensitive tape) and may be in the form of a roll.

SEE OR SEARCH CLASS:

206, Special Receptacle or Package, subclasses 389+ for a stock material in the form of a roll or coil which has a feature significant for a roll, e.g., mandrel structure, cover structure, modified outer layer, etc.; see Search Note to Class 206 in class definition, VI, Relation to Certain Other Classes.

427, Coating Processes, subclass 177 for a process of applying a coating or impregnation to a material, combined with the step of rolling or coiling the material on itself.

906.6 EMBROIDERY:

Patents disclosing stock material having decorative needlework.

907 Stock material product which has been treated so as to minimize it being affected by germs, fungus, rodents or other animals (land, air or sea).

SEE OR SEARCH CLASS:

424, Drug, Bio-Affecting and Body Treating Compositions, appropriate subclasses, for a named product or article treated by a specific composition, or by a method of that class where no structure is recited for classification elsewhere. An article treated, coated or impregnated with a Class 424 composition and which composition functions only to preserve the article from biological attack, is generally classified with the particular article protected.

907.7 LAYER OR ARTICLE RENDERED LIGHT-TRANSMISSIVE BY PRESSURE (E.G., BLUSHED, ETC.):

Collection of patents which disclose subject matter of this class wherein an article or a layer of a composite can be changed from an opaque state to a transparent or translucent state by the application of pressure.

908 Stock material product which is susceptible of deformation and which will maintain said deformation, due to either the structure of the product or the material(s) employed in its manufacture.

SEE OR SEARCH CLASS:

369, Dynamic Information Storage or Retrieval, subclass 272.1 for records having dynamic information modulated groove structure.

720, Dynamic Optical Information Storage or Retrieval, subclasses 718 through 746 for optical storage medium structure.

908.8 WEAR-RESISTANT LAYER:

Patents disclosing stock material having an outer surface specially formulated to stand up under conditions of severe abrasion.

909 Stock material product which is susceptible of deformation when a load is applied and which will recover its original shape when said load is removed, due to either the structure thereof or the material(s) employed in its manufacture.

SEE OR SEARCH THIS CLASS, SUBCLASS:

304+, especially 310+ for a composite* sheet* or web* comprising a porous or cellular* component* which is usually a foam and is resilient.

910 Stock material product in which long chain polymeric molecules have been realigned in a material while in the solid state.

(1) Note. The term, "stock material product includes web(s)*, sheet(s)*, non-structural laminate(s), fiber(s)*, strand(s)*, etc.

(2) Note. The physical treatment generally employed for molecular orientation is: applying tension under controlled conditions to a polymeric composition (consequently such products are also called "stretch-oriented").

SEE OR SEARCH CLASS:

260, Chemistry of Carbon Compounds, appropriate subclass indented under subclass 2, for a synthetic organic resin, which may include stretch-oriented molecules or have been molecularly oriented.

359, Optical: Systems and Elements, subclasses 483+ for an optical system (e.g., filters, etc.) in which the molecules oriented for an optical purpose (e.g., polarization, etc.).

911 Stock material product which includes structure and/or material adapted to prevent passage therethrough of an alien object.

(1) Note. This collection will receive disclosures of bullet-proof glass, material for bullet-proof vests, etc.

SEE OR SEARCH THIS CLASS, SUBCLASS:

34.1+, for a container type article which may have a layer* resistant to penetration.

912, for a disclosure of puncture-healing stock material.

SEE OR SEARCH CLASS:

2, Apparel, subclass 2.5 for an article of clothing which is penetration-resistant and subclasses 410+ for guards and protectors for the head; especially, subclasses 6.6+ for a soldier's helmet.

89, Ordnance, subclass 36 for a deflecting or penetration-resistant shield not elsewhere provided for; and see the search notes to that subclass.

109, Safes, Bank Protection, or a Related Device, subclasses 78+ for armored walls and panels.

912 Stock material product so constructed as to tend to close or seal any opening which might be made in it by a pointed object, such as a bullet or nail.

(1) Note. The "self-sealing" function is usually provided by a layer* of material which tends to flow or swell so as to fill the opening.

SEE OR SEARCH THIS CLASS, SUBCLASS:

34.1+, for a container type article which may have a puncture healing layer*.

911, for disclosures relating to penetration resistant stock material.

SEE OR SEARCH CLASS:

150, Purses, Wallets, and Protective Covers, subclass 55 for "self-healing" receptacles made of flexible material such as cloth, rubber or plastic.

220, Receptacles, subclass 560.02 for a receptacle including puncture-healing structure, and subclass 900 for a lined metallic receptacle having such property.

912.2 MIRROR:

Patents disclosing stock material specially designed to reflect light images.

SEE OR SEARCH CLASS:

359, Optical: Systems and Elements, subclasses 838+ for mirror structure.

913 Stock material in which at least one constituent* is disposed to respond to a stimulus in a predetermined manner to produce a desired result.

(1) Note. The result may be due to the cooperative responses, to their respective stimuli, of several constituents of the stock material occurring either simultaneously or consecutively (e.g., a chain reaction).

(2) Note. This collection is not intended to receive a disclosure which merely indicates a melting or softening at a particular temperature; but as exemplary of the disclosures to which this collection is restricted are: a layer which becomes opaque or transparent when subjected to light or heat to vary transmission of the light, a constituent which evolves CO2 gas when heated to a certain temperature in order to extinguish fire, or an adhesive which releases its bond between layers and allows insulating air spaces to form when the stock material is heated to a certain temperature.

(3) Note. Excluded from this collection are light sensitive materials of the type found in Class 430: a heat or light polymerizable material of the type found in Class 260, subclasses 2+.

SEE OR SEARCH THIS CLASS, SUBCLASS:

1, for a stock material product comprising a liquid crystal which usually responds to varying temperature, light or electrical potential to produce a change therein.

913.3 DECORATIVE ARTICLE FOR VIEWING FROM ONE SIDE ONLY (E.G., PLAQUE, ETC.):

Patents disclosing decorative articles having clearly defined thickness and nonthickness surfaces, the decorative aspects of the article generally being confined to one of the nonthickness surfaces.

914 Stock material product which comprises a portion capable of being removed therefrom and moved to and adhered to another surface either as small pieces or as a complete film.

SEE OR SEARCH CLASS:

462, Books, Strips, and Leaves for Manifolding, subclasses 69+ for a system comprising plural sheets one of which is a transfer sheet and the other a record receiver.

915 This subclass is indented under subclass 914. Stock material product under the definition of... in which the purpose of the transfer or decalcomania is to indicate whether or not it or something else (1) has been touched without authority or (2) is genuine.

SEE OR SEARCH THIS CLASS, SUBCLASS:

199, for a product having a coating or impregnation which will indicate attempts at erasure or alteration.

488, for a product comprising a layer of paper and a transferable substance containing a pigment, dye or a color forming reagent, e.g., carbon or hectograph paper.

916 Stock material product which provides means for determining whether it or something else (1) has been touched without authority or (2) is genuine.

SEE OR SEARCH THIS CLASS, SUBCLASS:

29+, for an article having a latent image which must be treated in some way to develop or bring out the image.

199, for a product having a nonuniform coating or impregnation which will indicate attempts at erasure or alteration.

915, for a transfer or decalcomania useful for preventing or indicating fraud or for indicating unauthorized use of a product.

917 Stock material product which emits light due to passage of an electric current therethrough or in contact therewith, and is usually produced by a phosphor treated surface.

SEE OR SEARCH CLASS:

216, Etching a Substrate: Processes, subclass 25 for processes involving etching in the manufacturing of phosphor devices.

427, Coating Processes, subclass 66 for a coating process which produces an electro-luminescent lamp.

918 Stock material product in which at least a portion contains a substance which is normally nontransparent but which in this product has been made transparent

(1) Note. Exemplary of the disclosures in this collection are paper, impregnated with a material of such refractive index that the paper becomes transparent; ground glass* or glass fibers*, embedded in a material with a refractive index such that the composite mass is rendered transparent; and a metal foil or layer thin enough to see through.

(2) Note. Materials, as glass*, cellophane and polymerized methyl methacrylate or other clear synthetic resins are normally transparent and would not be appropriate for this collection. If, however, any of the aforementioned (or other) normally transparent materials are disclosed in an opaque form with further treatment to restore transparency (e.g, the embedded ground glass of (1) Note above), place-

ment of the disclosure in this subclass would be proper.

SEE OR SEARCH CLASS:

359, Optical: Systems and Elements, subclasses 580+ for optical elements having a metallic coating which produces interference effects.

427, Coating Processes, subclass 161 for a coating process which increases the transparency of a material.

919 Stock material product which is caused to be invisible or indistinguishable at a distance by a particular combination of colors or paints or through its resemblance to the surroundings.

SEE OR SEARCH THIS CLASS, SUBCLASS:

195+, for a product which has a discontinuous or nonuniform coating similar to a camouflaged article.

SEE OR SEARCH CLASS:

106, Compositions: Coating or Plastic, appropriate subclasses, for compositions used to camouflage an article.

114, Ships, subclass 15 for a warship so rendered invisible or indistinguishable.

135, Tent, Canopy, Umbrella, or Cane, subclass 115 for canopies which may be camouflaged to hide articles thereunder.

427, Coating Processes, appropriate subclasses containing "nonuniform" or "variegated" in their titles as for example subclasses 261+, 280+, 299, 448, 466+, 504, 510+, 526, 552, 555+, etc., for processes of coating an article, which may result in camouflage.

920 Stock material product which is made so as to afford some defense against heat or fire, such as insulation or fire retardation.

SEE OR SEARCH THIS CLASS, SUBCLASS:

35+, for a tube type article of heat insulation not otherwise provided for.

386, 407, 432+, 457+, and 539, for other products which include a refractory metal or compound thereof which have a fire, heat or flame proofing feature.

443, for a laminated product comprising asbestos which acts to protect against heat or fire.

SEE OR SEARCH CLASS:

2, Apparel, subclasses 5, 7, and 8 for a heat resistant head covering for a person.

138, Pipes and Tubular Conduits, for an insulation in the form of pipe covering of specific structure.

169, Fire Extinguishers, appropriate subclasses for apparatus which acts to extinguish fires, or which act in anticipation of fire conditions to prevent fires.

252, Compositions, subclasses 2+ for a composition which may be used to extinguish fires or as a coating or impregnation to act as a defense against fire or flame.

921 This subclass is indented under subclass 920. Stock material product in which the product prevents fire or a flame from passing therethrough.

SEE OR SEARCH THIS CLASS, SUBCLASS:

34.1+, for a tube type article of heat insulation not provided for elsewhere.

386, 404+, 432+, 457+, and 539, for other products which include a refractory metal or a compound thereof and which thus possess a fire, heat or flame protection feature.

442, for a laminated stock material product including asbestos which acts to protect against fire or heat.

SEE OR SEARCH CLASS:

442, Fabric (Woven, Knitted, or Nonwoven Textile or Cloth, etc.), subclasses 141+ for a textile, cloth, or fabric impregnated with a phosphorus containing material which protects against fire or flame.

922 Stock material product which contains a free metal element therein or associated therewith to discharge harmlessly any accumulated static

electricity charge or to prevent such charge from accumulating.

SEE OR SEARCH THIS CLASS, SUBCLASS:

85+, for a pile or nap type surface article (e.g., carpet, etc.) which may contain other types of static electricity bleed off or antistatic material.

923 This and the indented subclasses are collections of published disclosures pertaining to physical dimensions of metallic* stock-materials*.

(1) Note. The physical dimensions may be recited in terms of a standard unit of measurement or in terms of relative amounts. Also, the recitation may be in terms of weight or other parameter which can be converted mathematically into a dimension.

(2) Note. Disclosures are placed in these subclasses for their value as references, without regard to their original classification or their claimed subject matter.

(3) Note. This and the indented subclasses should not be considered complete collections of patents relating to their subject matter.

(4) Note. Patents should not be cross-referenced to this or its indented subclasses on the basis of the physical dimension of a nonmetal component*, but rather, should be cross-referenced to subclasses mentioned in the search notes which provide for nonmetallic* stock-materials*.

SEE OR SEARCH THIS CLASS, SUBCLASS:

219, and 220, for nonmetallic* stock-material* in which weight or an overall physical dimension is specified.

606+, for foils and filaments smaller than 6 mils in overall dimension.

924 This subclass is indented under subclass 923. Disclosures which recite a physical dimension, usually thickness, of composite* metallic* stock.

SEE OR SEARCH THIS CLASS, SUBCLASS:

219, and 220, for nonmetallic* composite* stock-material* in which weight or an overall dimension is specified.

925 This subclass is indented under subclass 924. Disclosures wherein the dimension recited is a quantitative relationship between one layer and another layer, or between one layer and the entire stock-material*, e.g., one layer is one-half the thickness of a second layer, etc.

SEE OR SEARCH THIS CLASS, SUBCLASS:

213+, 332+, and 340+, for a nonmetallic* composite* in which the dimension or weight of a component is recited.

926 This subclass is indented under subclass 923. Disclosures in which the dimension of one or more layers is recited relative to a standard measure of quantity, e.g., one layer is 0.002 inches thick, etc.

(1) Note. If one layer is recited as “a foil”, cross-referencing here is proper.

SEE OR SEARCH THIS CLASS, SUBCLASS:

215+, 332+, and 340+, for a nonmetallic* composite* in which the absolute dimension or weight of a component is recited.

927 Cross-reference collection concerned with metal stock-materials* disclosed as having an appearance or other psychological effect which conveys information or is designed to be esthetically pleasing.

(1) Note. See the notes to the main class definition of this class (428), section VI, C, 3, d, for the loci of other related subject matter.

SEE OR SEARCH THIS CLASS, SUBCLASS:

32, for an article having ornamental wound or woven strands.

141+, 156+, 175+, and 195+, for a sheet or web having a textured surface, varying thickness, nonplanarity or discon-

tinuous or differential coating, impregnation or bond, and which may have an ornamental design or indicia, in particular, subclass 187.

687, for metallic* stock-material* having a defined surface characteristic.

SEE OR SEARCH CLASS:

283, Printed Matter, appropriate subclasses for books, strips, leaves and articles of conventional structure bearing indicia.

928 Cross-reference collection in which the metallic* stock-material* or a component* thereof is ferromagnetic, that is, has a high magnetic permeability which varies with the magnetizing force upon it.

(1) Note. See the notes to subclass 611 of this class (428) for loci of related subject matter.

SEE OR SEARCH THIS CLASS, SUBCLASS:

900, for a nonmetallic* product having a magnetic feature.

SEE OR SEARCH CLASS:

427, Coating Processes, subclass 131 for processes of applying superposed diverse coatings, or coating a coated base, either base of coating being magnetic.

929 Cross-reference collection in which the metallic* stock is designed for use in electrical switches or other make-and-break electric circuit components.

(1) Note. See the notes in the definition of subclass 616 of this class (428), and the main class definition, section VI, C, 4, for loci of other related subject matter.

SEE OR SEARCH THIS CLASS, SUBCLASS:

616, for bimetallic contact stock which is deflectable by a temperature change.

930 Cross-reference collection in which the metallic* stock or a component thereof has the property of abnormally low or absent electric resistance at temperatures which approach absolute zero.

SEE OR SEARCH THIS CLASS, SUBCLASS:

662, for composites having a niobium stannite component.

SEE OR SEARCH CLASS:

420, Alloys or Metallic Compositions, subclass 901 for a cross-reference collection of superconductive alloys.

931 Cross-reference collection of composite* metallic* materials in which the components of the material differ from each other in their electrical conductivity.

(1) Note. See the main class definitions of this class (428), section VI, C, 4, for loci of other related subject matter.

SEE OR SEARCH THIS CLASS, SUBCLASS:

686, for composites which are defined in terms of the function of adjacent components.

932 Cross-reference collection in which the metallic* stock-material* has properties particularly suiting the material for use as a cutting or abrading medium.

SEE OR SEARCH THIS CLASS, SUBCLASS:

600+, for metallic* stock having a tapering, knifelike edge.

SEE OR SEARCH CLASS:

30, Cutlery, subclass 346 for cutlery materials.

51, Abrasive Tool Making Process, Material, or Composition, for an abrading composition in general.

75, Specialized Metallurgical Processes, Compositions for Use Therein, Consolidated Metal Powder Compositions, and Loose Metal Particulate Mixtures, subclass 231 for consolidated metal powder compositions containing an abrading component.

433, Dentistry, subclasses 125, 141, and 166 for dental abrading devices.

933 Cross-reference collection of metallic* composites having a component which is consumed or consumable in preventing electrolytic corrosion of another component.

(1) Note. Patents classified in subclass 659 are not cross-referenced here.

SEE OR SEARCH CLASS:
205, Electrolysis: Processes, Compositions Used Therein, and Methods of Preparing the Compositions, subclasses 80+ for electrolytic coating methods.
427, Coating Processes, subclass 437 and the definitions thereto, for electroless metal plating processes.

934 Cross-reference collection in which metallic* stock-material* is made by a process which employs electricity, e.g., electric arc welding, etc.

SEE OR SEARCH CLASS:
156, Adhesive Bonding and Miscellaneous Chemical Manufacture, subclass 273.1 for surface bonding methods with direct application of electrical or radiant energy to work.
219, Electric Heating, subclasses 50+ for welding by electric heating.

935 This subclass is indented under subclass 934. Cross-reference collection in which electrolysis is the process involved and the electrolysis results in coating one metal with another.

SEE OR SEARCH CLASS:
205, Electrolysis: Processes, Compositions Used Therein, and Methods of Preparing the Compositions, subclasses 80+ for processes of electrolytic coating.

936 Cross-reference collection in which the metallic* stock is manufactured by reduction of a metal compound contained in a solution, and precipitation of the resulting free metal on a substrate.

SEE OR SEARCH CLASS:
427, Coating Processes, subclass 437 for an immersion-type coating method directed to the electroless deposition of a free metal onto a metal base.

937 Cross-reference collection in which the metallic* stock is made by spraying metal, in molten form, onto a substrate.

SEE OR SEARCH CLASS:
427, Coating Processes, subclass 223 for a process in which a coating or a substrate to be coated is subjected to a flame and subclass 446+ for spraying utilizing a flame or plasma.

938 Cross-reference collection in which metallic* stock is made by depositing metal onto a substrate from a gas or vapor containing the metal.

SEE OR SEARCH CLASS:
427, Coating Processes, subclass 96.7 for using a mist or aerosol and subclass 96.8 for vapor or gas deposition in a coating process to produce an integrated or printed circuit or circuit board, and subclass 124 for metal coating by vapor deposition or using a vacuum to make a different kind of electrical product.

939 Cross-reference collection in which the metallic* stock is made by contacting a substrate with a molten mass of a coating metal, e.g., welding, soldering, dipping, etc.

SEE OR SEARCH CLASS:
219, Electric Heating, subclasses 50+ for methods of that class resulting in melting and fusion of a metal.
228, Metal Fusion Bonding, subclasses 101+ for nonelectric welding and soldering processes.
427, Coating Processes, subclass 431 for an immersion-type coating process utilizing a molten metal.

940 Cross-reference collection in which a composite metallic* stock-material* is made by pressure, that is, without the application of enough heat, as heat, to cause bonding.

SEE OR SEARCH CLASS:
219, Electric Heating, subclass 95 for percussive bonding methods of that class.

228, Metal Fusion Bonding, subclasses 107+, 110.1+, 112.1+, and 115+ for corresponding methods of that class.

427, Coating Processes, subclass 587 and 593 for a process in which sonic or ultrasonic energy is applied directly to the work.

941 Cross-reference collection in which a metallic* stock is made by heating a layered stock-material* for a time and at a temperature sufficient to cause one of the original layers to disappear by diffusion into an adjacent layer or layers of the stock.

SEE OR SEARCH THIS CLASS, SUBCLASS:

547, and 610, for metallic* stock-materials* having a composition gradient, often due to a diffusion process.

SEE OR SEARCH CLASS:

148, Metal Treatment, subclasses 516+ for processes of treating layered, bonded, welded or mechanically engaged solid metal stock or article to modify or maintain the internal physical structure (i.e., microstructure) or chemical properties of metal.

420, Alloys or Metallic Compositions, for alloy or metallic compositions

FOREIGN ART COLLECTIONS

The definitions for FOR 100-FOR 116 below correspond to the definitions of the abolished subclasses (292-303, 311.1, 311.3, 311.5, 311.7, 311.9) under Class 428 from which these collections were formed. See the Foreign Art Collection schedule for specific correspondences. [**Note**: The titles and definitions for *indented* art collections include all the details of the one(s) that are hierarchically superior.]

FOR 100 Including noninterengaged strand(s) or strand-portion(s) (428/292):
Foreign art collection for a product wherein (1) one or more strands or strand-portions* are attached to or incorporated in the body of the web or sheet in such a manner as to be independent of entanglement with contiguous strands or strand-portions* or (2) wherein such strands or strand-portions*, when so disposed, constitute the web or sheet.

FOR 101 With or in fiber layer (428/293):
Foreign art collection for a product wherein the web or sheet comprises a fiber containing layer or component.

FOR 102 Parallel (428/294):
Foreign art collection for a product wherein the strands or strand-portions lie in a single layer either in side-by-side or equidistantly spaced relation throughout their length.

FOR 103 With coating, impregnation or bond of rubber or elastomeric material (428/295):
Foreign art collection for a product in which the strips, strands or strand-portions are covered or saturated with fluent or plastic material or are joined to each other or to another part of the web by an adhesive and the saturant, coating or adhesive comprising rubber or rubber-like material.

FOR 104 Autogeneously bonded fibers (428/296):
Foreign art collection for a product consisting of or containing fibers secured to other fibers thereof by means of an inherent adhesive or cohesive property of the fibers.

FOR 105 Including a second component containing structurally defined fibers (428/297):
Foreign art collection for a product which consists of plural components, at least one of which comprises macroscopic fibers claimed in terms of (1) their particular shape (natural or fabricated) or (2) an orderly arrangement thereof relative to each other, (3) their particular interengagement within a layer, (4) their engagement with an adjacent layer or (5) their particular size.

FOR 106 Plural fiber layers (428/298):
Foreign art collection for a product which comprises two or more layers consisting of or including fibers, at least one such layer comprising the above characterized structurally defined fibers.

FOR 107 Intertangled and/or interfitted (428/299):
Foreign art collection for a product wherein fibers of mutually engaging layers are interengaged and/or compacted together so as to hold the layers in assembled relation.

FOR 108 Needled (428/300):

Foreign art collection for a product wherein the interlocking of the fibers, as disclosed, is accomplished by the passage of barbed needles through the layers.

FOR 109 With coating, impregnation or bond (428/301):
Foreign art collection for a product in which any part of the product has been covered or saturated with fluent or plastic material, or in which layers are joined to each other by an adhesive.

FOR 110 With coating, impregnation or bond (428/302):
Foreign art collection for a product in which at least one of the layers has been covered or saturated with fluent or plastic material or in which layers are joined to each other by an adhesive.

FOR 111 Physical dimension specified (428/303):
Foreign art collection for a product in which the absolute size (width, thickness, etc.) of a component or fiber is recited.

FOR 112 Void-containin component has a continuous matrix of fibers only (e.g., porous paper, etc.):
Foreign art collection wherein a component of the composite is one which depends solely upon fibers for its continuity.

FOR 113 And a force disintegratable component (e.g., stencil sheet, etc.):
Foreign art collection wherein a component of the composite may be locally disintegrated by the application of a sudden force thereto, for example, by a typewriter key.

FOR 114 Fibers of defined composition:
Foreign art collection wherein the chemical makeup of the fibers is specified, as, for example, natural leather, polypropylene, etc.

FOR 115 Cellulosic:
Foreign art collection wherein the fiber is made of cellulose or a cellulose derivative, e.g., paper, etc.

FOR 116 Plural cellulosic components:
Foreign art collection wherein the composite comprises two or more layers of fibrous cellulose material.

FOR 117 Discontinuos or differential coating, impregnation or bond (e.g., artwork, printing, retouched photograph, etc.):
This subclass is indented under subclass 98. Product wherein at least one component or layer has spaced areas, substantially less than the total area of the involved surface of the layer or component, which are either, (1) faced or saturated with fluent or plastic material or (2) joined to other portions of the layer or components or to another layer or component by adhesion or cohesion; or wherein the facing, saturation or junctures set forth in clauses (1) and (2) above is of a different character (e.g., strong bond next to weak bond) in different areas of the web or sheet.

(1) Note. A design or printed matter or indicia of any sort will be considered as a discontinuous coating for this subclass unless clearly disclosed as uniform.

FOR 118 Including paper layer:
This subclass is indented under subclass 195. Product in which one of the layers contains fibers* of paper*.

FOR 119 Of wax or waxy material:
This subclass is indented under subclass 411.1. Product in which one layer is a wax* or has waxy* properties.

FOR 120 With pigment or dye (e.g., carbon paper hectograph paper, etc.):
This subclass is indented under subclass 486. Product including coloring material comprising (a) small, solid free particles* of coloring matter, (b) coloring material which has been chemically attached to another substance (dye).

FOR 121 Having layer over transferable material or on carrier opposite transferable material layer:
This subclass is indented under subclass 488.1. Subject matter in which a layer of the composite material or selected portions of such layer nay be transferred form the carrier layer to another material (e.g., carbon-paper type), the composite being provide with at least a third layer outward of the

transferable layer or directly of the carrier layer, opposite the transferable layer.

FOR 122 Magneto optical recording medium or carrier:
Foreign art collection wherein the recording medium or carrier is composed of a magnetic material and records information based on changes in magnetization and the recorded information is readable; e.g., by diffraction of polarized light through a magnetic field, etc.

FOR 123 Magnetic recording medium or carrier:
Foreign art collection wherein the recording medium or carrier contains magnetizable material in the form of particles, film, coating, layer, or impregnant which is intended for the storage of more than a single bit of information to be read by a magnetic head.

FOR 124 Lubricant containing:
Foreign art collection wherein the recording medium or carrier contains a substance that reduces friction.

FOR 125 Protective layer containing:
Foreign art collection wherein the magnetic recording medium or carrier layer is covered by a resistant layer; e.g., resistant to heat, cold, oxidation, pollution, etc.

FOR 126 Aluminum containing:
Foreign art collection wherein the magnetic recording medium or carrier contains aluminum as a free metal, combined metal, and includes alloys and metal compounds.

FOR 127 Chromium containing:
Foreign art collection wherein the magnetic recording medium or carrier contains chromium as a free metal, combined metal, and includes alloys and metal compounds.

FOR 128 Defined magnetic layer:
Foreign art collection in which a layer or component thereof has disclosed properties which include magnetic susceptibility.

FOR 129 Next to second metal-compound-containing layer:
Foreign art collection wherein the magnetic component is in a metal-compound-containing layer next to another metal-compound-containing layer.

FOR 130 Dynamic recording medium:
Foreign art collection which has a use as a recording medium, e.g., tape, disc, etc., which is "read" by using relative motion between the medium and the reading device and wherein the composition of a backing or support material is not defined in the claims.

FOR 131 Magneto optical recording layer:
This foreign art collection was derived from an undefined alpha subclass. Consult the documents contained herein to clarify or interpret the title and scope of this foreign art collection.

FOR 132 Specified recording layer composition:
This foreign art collection was derived from an undefined alpha subclass. Consult the documents contained herein to clarify or interpret the title and scope of this foreign art collection.

FOR 133 Lanthanoid:
This foreign art collection was derived from an undefined alpha subclass. Consult the documents contained herein to clarify or interpret the title and scope of this foreign art collection.

FOR 134 Garnet or magnetoplumbite:
This foreign art collection was derived from an undefined alpha subclass. Consult the documents contained herein to clarify or interpret the title and scope of this foreign art collection.

FOR 135 Separate refractive, anti-reflective or protective layer composition:
This foreign art collection was derived from an undefined alpha subclass. Consult the documents contained herein to clarify or interpret the title and scope of this foreign art collection.

FOR 136 Pure metal or alloy:
This foreign art collection was derived from an undefined alpha subclass. Consult the documents contained herein to clarify or interpret the title and scope of this foreign art collection.

FOR 137 Rare earth:
This foreign art collection was derived from an undefined alpha subclass. Consult the documents contained herein to clarify or interpret the title and scope of this foreign art collection.

FOR 138 Nitride, carbide, or fluoride:
This foreign art collection was derived from an undefined alpha subclass. Consult the documents contained herein to clarify or interpret the title and scope of this foreign art collection.

FOR 139 Oxide or sulfide:
This foreign art collection was derived from an undefined alpha subclass. Consult the documents contained herein to clarify or interpret the title and scope of this foreign art collection.

FOR 140 Reflective layer specified:
This foreign art collection was derived from an undefined alpha subclass. Consult the documents contained herein to clarify or interpret the title and scope of this foreign art collection.

FOR 141 With plasma polymerized organic top coat or other adhesive layer:
This foreign art collection was derived from an undefined alpha subclass. Consult the documents contained herein to clarify or interpret the title and scope of this foreign art collection.

FOR 142 Multiple magnetic layers:
This foreign art collection was derived from an undefined alpha subclass. Consult the documents contained herein to clarify or interpret the title and scope of this foreign art collection.

FOR 143 Exchange coupling:
This foreign art collection was derived from an undefined alpha subclass. Consult the documents contained herein to clarify or interpret the title and scope of this foreign art collection.

FOR 144 Magnetically or thermally isolated:
This foreign art collection was derived from an undefined alpha subclass. Consult the documents contained herein to clarify or interpret the title and scope of this foreign art collection.

FOR 145 Composition gradient:
This foreign art collection was derived from an undefined alpha subclass. Consult the documents contained herein to clarify or interpret the title and scope of this foreign art collection.

FOR 146 Hardness, stress, thermal or electrical coefficients specified:
This foreign art collection was derived from an undefined alpha subclass. Consult the documents contained herein to clarify or interpret the title and scope of this foreign art collection.

FOR 147 Microporous layer:
This foreign art collection was derived from an undefined alpha subclass. Consult the documents contained herein to clarify or interpret the title and scope of this foreign art collection.

FOR 148 Metal thin film magnetic layer:
This foreign art collection was derived from an undefined alpha subclass. Consult the documents contained herein to clarify or interpret the title and scope of this foreign art collection.

FOR 149 Specified subbing or underlayer:
This foreign art collection was derived from an undefined alpha subclass. Consult the documents contained herein to clarify or interpret the title and scope of this foreign art collection.

FOR 150 Specified back coat layer:
This foreign art collection was derived from an undefined alpha subclass. Consult the documents contained herein to clarify or interpret the title and scope of this foreign art collection.

FOR 151 Topcoat, or protective overlayer:
This foreign art collection was derived from an undefined alpha subclass. Consult the documents contained herein to clarify or interpret the title and scope of this foreign art collection.

FOR 152 Carbon:
This foreign art collection was derived from an undefined alpha subclass. Consult the documents contained herein to clarify or interpret the title and scope of this foreign art collection.

FOR 153 Plasma polymerized:
This foreign art collection was derived from an undefined alpha subclass. Consult the documents contained herein to clarify or interpret the title and scope of this foreign art collection.

FOR 154 Fluorocarbon or organosilicon layer:
This foreign art collection was derived from an undefined alpha subclass. Consult the documents contained herein to clarify or interpret the title and scope of this foreign art collection.

FOR 155 Specified surface feature or roughness:
This foreign art collection was derived from an undefined alpha subclass. Consult the documents contained herein to clarify or interpret the title and scope of this foreign art collection.

FOR 156 Multiple magnetic layer:
This foreign art collection was derived from an undefined alpha subclass. Consult the documents contained herein to clarify or interpret the title and scope of this foreign art collection.

FOR 157 Binder containing magnetic layer:
This foreign art collection was derived from an undefined alpha subclass. Consult the documents contained herein to clarify or interpret the title and scope of this foreign art collection.

FOR 158 Radiation curable binder:
This foreign art collection was derived from an undefined alpha subclass. Consult the documents contained herein to clarify or interpret the title and scope of this foreign art collection.

FOR 159 Organic acid or salt thereof:
This foreign art collection was derived from an undefined alpha subclass. Consult the documents contained herein to clarify or interpret the title and scope of this foreign art collection.

FOR 160 Polyurethane binder:
This foreign art collection was derived from an undefined alpha subclass. Consult the documents contained herein to clarify or interpret the title and scope of this foreign art collection.

FOR 161 Isocyanate specified:
This foreign art collection was derived from an undefined alpha subclass. Consult the documents contained herein to clarify or interpret the title and scope of this foreign art collection.

FOR 162 Polyol specified:
This foreign art collection was derived from an undefined alpha subclass. Consult the documents contained herein to clarify or interpret the title and scope of this foreign art collection.

FOR 163 Specified lubricant or protective layer:
This foreign art collection was derived from an undefined alpha subclass. Consult the documents contained herein to clarify or interpret the title and scope of this foreign art collection.

FOR 164 Fluorocarbon or organosilicon:
This foreign art collection was derived from an undefined alpha subclass. Consult the documents contained herein to clarify or interpret the title and scope of this foreign art collection.

FOR 165 Including subbing or underlayer:
This foreign art collection was derived from an undefined alpha subclass. Consult the documents contained herein to clarify or interpret the title and scope of this foreign art collection.

FOR 166 Including back coat layer:
This foreign art collection was derived from an undefined alpha subclass. Consult the documents contained herein to clarify or interpret the title and scope of this foreign art collection.

FOR 167 Specified surface feature or roughness:

This foreign art collection was derived from an undefined alpha subclass. Consult the documents contained herein to clarify or interpret the title and scope of this foreign art collection.

FOR 168 With non-magnetic particle:
This foreign art collection was derived from an undefined alpha subclass. Consult the documents contained herein to clarify or interpret the title and scope of this foreign art collection.

FOR 169 Magnetic particle with specified shape or dimension:
This foreign art collection was derived from an undefined alpha subclass. Consult the documents contained herein to clarify or interpret the title and scope of this foreign art collection.

FOR 170 Hexagonal or tabular:
This foreign art collection was derived from an undefined alpha subclass. Consult the documents contained herein to clarify or interpret the title and scope of this foreign art collection.

FOR 171 Multiple magnetic layers:
This foreign art collection was derived from an undefined alpha subclass. Consult the documents contained herein to clarify or interpret the title and scope of this foreign art collection.

FOR 172 Support composition specified:
This foreign art collection was derived from an undefined alpha subclass. Consult the documents contained herein to clarify or interpret the title and scope of this foreign art collection.

FOR 173 Organic material:
This foreign art collection was derived from an undefined alpha subclass. Consult the documents contained herein to clarify or interpret the title and scope of this foreign art collection.

FOR 174 Specified surface feature or roughness:
This foreign art collection was derived from an undefined alpha subclass. Consult the documents contained herein to clarify or interpret the title and scope of this foreign art collection.

FOR 175 With lubricant in or on layer:
Foreign art collection which has, either in or on the magnetic layer, a material disclosed as having a lubricant function.

END